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An Automatically Controlled Dishwashing Machine*

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DISHWASHING machines have been in use in this country for approximately 40 years. Although the machines have been mechanically improved and utensils are now washed more quickly, more economically, and with less breakage than can be accomplished by hand, the sanitary efficiency of the entire process is dependent upon the machine operator, who is most often a transient, unskilled laborer.

The essential steps in washing or processing of cooking and eating utensils are: (1) the removal of all soil by washing for the optimum length of time at the optimum temperature, with water to which a suitable detergent has been added in proper concentration, and (2) the removal of any bacteria which may remain by rinsing with clear water, also for the optimum time at the optimum temperature.

The present-day dishwashing machines are equipped with either steam heated or gas heated wash tanks. The rinse water may be heated in the machine by steam or gas, or may be supplied direct to the machine from the house hot water line or from a separate hot water heater. The operator controls the temperature of the wash water and, in certain types of machines, the temperature of the rinse water also. The temperature of the wash water may also be influenced by the pressure of the steam or gas used as the heating agent. The temperature of the rinse water is subject to variations from the same causes.

In the fall of 1935, the Commanding General, the Army Medical Center, directed that a study of mechanical dishwashing and dishwashing machines be made. The 20 machines in use at this station, operated by a constantly changing personnel, afforded an excellent field for study. It was soon seen that the solution of the problem lay in the development of a dishwashing machine in which the temperature of the wash water, the length of time of the wash process, and the temperature and length of time of the rinse process must be automatically and not manually controlled.

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In association with the Chairman of the Sub-Committee on Standard Methods for the Examination of Dishwashing Devices of the Committee on Research and Standards of the A.P.H.A., Major A. P. Hitchens, M.C., U.S.A., the author placed his plans for an automatically controlled dishwashing machine before representatives of a large manufacturer.* The coöperation of this company was whole-heartedly extended and their engineers developed an experimental machine which was installed in Mess I, Walter Reed General Hospital, for research and study under varying conditions of operation.

The machine installed is a standard, single tank, stock model, with automatic thermostatic control on the steam injector to the wash tank, to which accessory equipment for automatic control of the washing process has been added. Figure I is a perspective drawing of the functioning parts. The accessory equipment includes an electric thermostat installed in the wash tank, a magnetic motor switch, an operating switch, installed on the wash handle, a time relay, a solenoid, an interlock rod, a pilot light, a wash water temperature gauge and a rinse water temperature gauge. Most of these accessory parts are standard commercial items which have been employed successfully in various types of automatic temperature control.

When operating the machine, the wash process cannot be activated unless the water in the wash tank has reached the predetermined temperature for which the temperature controls are set. Coincident with the starting of the wash process, the doors of the machine lock and cannot be opened until the time cycle for the wash process is completed. If, during the wash process cycle, the wash water drops below the predetermined temperature, the machine will stop automatically.

The automatic thermostatic control on the steam injector to the wash tank and the electric thermostat on the wash tank may be set at any desired temperature between the range 120° F. and 190° F. Once set, it is possible to seal these thermostats, thus preventing unauthorized adjustment. The length of the time cycle controlling the wash period may also be varied. This control may also be sealed. Flexible control of the wash process makes the machine readily adaptable for operation under the various sanitary regulations. As a result of studies in the processing of eating utensils in messes at the Army Medical Center, the standard of a 60 second wash period at 160° F. has been adopted as regulation and the controls of the machine set in accordance with this regulation.

The temperature of the rinse water and the time of the rinse process on this machine are manually and not automatically controlled. Automatic time and temperature controls for the rinse process have been developed and a machine equipped with these additional controls will be installed at the Army Medical Center shortly.

Less mechanical skill is required in the operation of this machine than is necessary in the operation of a standard model. During the past 8 months, the machine has been successfully operated by a number of unskilled mess attendants in the routine daily processing of the cooking and eating utensils of a large mess, and exhaustive experimental studies have been made without mechanical breakdown or the development of mechanical flaws.

The machine is operated in the following manner:

The wash tank is filled with water, the initial charge of washing powder is added, and the thermostatically controlled steam in-

* This machine was developed by the Hobart Manufacturing Company, Troy, Ohio, and was installed for test and experimental study at the Army Medical Center with the permission of the Surgeon General, U. S. Army.

jector (A. Figure I) is opened. When the water in the wash tank has reached the predetermined temperature at which the machine is to be operated (the wash tank temperature

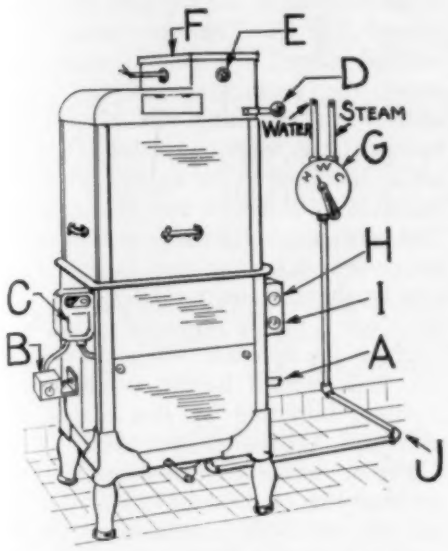

FIGURE I—PERSPECTIVE DRAWING OF MACHINE

A. Steam injector with automatic thermostatic control.
B. Open contact thermostat to wash tank.
C. Magnetic motor switch.
D. Wash and rinse control handle.
E. Control box, containing time cycle control, operating switch and solenoid.
F. Pilot light.
G. Regulating valve.
H. Rinse water temperature gauge.
I. Wash water temperature gauge.
J. Rinse line to machine.

is indicated constantly on the wash tank temperature gauge, I. Figure I), the operator places a rack of utensils in the machine, closes the doors, and starts the motor by pressing the "push button" on the magnetic starting switch (C. Figure I) which is controlled by the electric thermostat (B. Figure I) to the wash tank. The contacts on this thermostat remain constantly open, until the wash water reaches the predetermined temperature, when they close and permit the current to pass and energize the magnetic switch. (If the water in the wash tank drops below the predetermined temperature the contacts on the thermostat open, the magnetic starting switch is deënergized and the machine stops.) The motor is now idling. The wash process is activated by turning the wash control handle (D. Figure I) to the wash position. This action locks the doors of the machine, starts the wash process, for the time cycle for which the machine is set, and switches on the pilot light which remains burning until the end of the time cycle.

The details of the time control and locking devices are shown in Figure II. When the wash control handle (A. Figure II) is placed in the wash position, the switch (D. Figure II) is thrown to the "ON" position. The time relay (F. Figure II) is energized, and this in turn energizes the solenoid (E. Figure II) and lights the pilot light (G. Figure II). The solenoid pushes the interlock rod (C. Figure II) forward, locking the wash control handle in position, preventing the opening of the machine doors. The time relay is set for a predetermined period, at the termination of which the washing process is stopped, the pilot light is switched off, the solenoid is deënergized, the interlock rod is extracted,

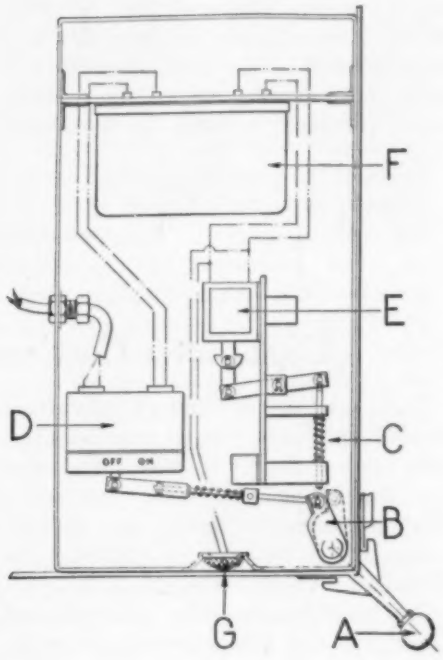

FIGURE II—CONTROL BOX

A. Wash and rinse control handle.
B. Switch operating arm.
C. Interlock rod.
D. Wash process operating switch.
E. Solenoid.
F. Time relay.
G. Pilot light.

and the wash control handle is released. The operator may now return the wash control handle to neutral or turn it to the rinse position.

In a series of experimental studies it was found that properly washed utensils were efficiently rinsed in from 8 to 10 seconds when clear water at 180° F. at 40 lb. pressure was used. This temperature is never maintained in hot water lines for general use. Since in this single tank machine, the hot water for the rinse process is delivered to the machine from the house hot water line, and it was impossible to install a booster tank or a special hot water boiler, it was found necessary to raise the temperature of the water delivered to the rinse nozzles at 180° F. without reducing the pressure below 40 lbs., by other means. After many failures, this was accomplished by the installation, on the rinse water supply line, of a regulating valve (designed to meet the local conditions of steam and water pressure), which mixed the steam with the water of the hot water line and delivered it to the machine at the required temperature of 180° F. The rinse water temperature gauge (H. Figure I) constantly shows the temperature of the rinse water. In operating the rinse, the handle of the regulating valve (G. Figure I) is turned to the heating position, indicated by H. on the face of the valve. The wash control handle is turned to the rinse position and held in this position by the operator for 10 seconds by the clock. In the improved automatic machine the operator will simply turn the wash control handle to the rinse position, initiating by this action an electrically controlled rinse cycle.

The automatic control features, with the exception of the door locking device, are adaptable for installation on both the single and multiple tank machines of various manufacturers.

Diphtheria Carriers—An English View

". . . A large number of individuals carry diphtheria bacilli temporarily, who are no danger to others and who are developing their own immunity. The unsystematic hunting out of carriers by indiscriminate swabbing is therefore to be deprecated. It is much more practical to make local clinical conditions the sole criterion for swabbing. In every carrier, and in every doubtful case of diphtheria, virulence tests and Schick tests should be performed: only thus is it possible to classify carriers and separate out those that matter.

The solution to the carrier problem is, however, available. It is to immunize the susceptible population and stop bothering about the carrier."—The Problem of the Diphtheria Carrier, by M. Mitman, M.D., M.R.C.P., D.P.H., Medical Superintendent, Eastern (L. C. C.) Hospital, *J. State Med.*, May, 1937, p. 256.

Rabies Deaths in Alabama*

Analysis of Case Histories With Regard to Treatment

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THE prevention of rabies in humans by the administration of antirabies vaccine to those bitten by rabid animals is a secondary, though necessary, feature in the control of the disease. In those localities, such as Alabama, where it has been impossible to institute or enforce effective measures for curbing the disease in dogs, the manufacture and distribution of antirabies vaccine has become an expensive and tedious problem of public health administration; expensive because of the ever increasing amounts of vaccine required, and tedious because of the countless multitudes who require individual attention and concrete advice concerning the necessity for taking treatment.

The incidence of rabies in Alabama has been recently reported by Baker, McAlpine, and Dowling (1936) [1] but for the period of this study may be briefly reviewed (Table I). From January, 1922, to August, 1936, a period of 14 years and 7 months, 9,282 animals received a positive laboratory diagnosis of rabies, 34,864 individuals were given antirabies vaccine, 42 persons died of the disease; and this in a population of between 2,000,000 and 3,000,000.

Despite a sixfold increase in the incidence of the disease among animals, human mortality has been maintained at a low figure, apparently by a similar increase in the administration of antirabies vaccine. Mortality rates per 100,000 of the population have remained so insignificantly low that such fluctuations as do occur are of no importance. Likewise, mortality rates among the treated population have remained consistently low and compare favorably with figures published by McKendrick (1935).[7]

ANALYSIS OF QUESTIONNAIRES

During the period of study both attenuated and phenol killed virus have been administered—commercially prepared Pasteur treatments from 1922 to 1930, and Semple treatments from August, 1929, to the present time. Commercially prepared Semple vaccine was used until February, 1931, when the State Health Department undertook both its manufacture and distribution.

Circumstances of exposure greatly

* Read before the Laboratory Section of the American Public Health Association, at the Sixty-fifth Annual meeting in New Orleans, La., October 20, 1936.

TABLE I

Prevalence of Rabies in Alabama

Year	Rabid Animals	Individuals Treated	Per cent Mortality Following Treatment	Mortality (among treated and untreated) per 100,000 of the general population
1922	161	545	0.18	0.04
1923	218	586	0.17	0.12
1924	639	1,272	0.16	0.08
1925	607	1,413	0.07	0.08
1926	761	1,775	0.06	0.12
1927	547	1,424	0.07	0.15
1928	560	1,781	0.17	0.15
1929	526	1,525	0.07	0.04
1930	442	1,785	0.11	0.11
1931	613	2,715	0.00	0.11
1932	836	3,487	0.00	0.07
1933	827	3,635	0.11	0.18
1934	1,017	5,398	0.04	0.14
1935	977	5,001	0.02	0.14
1936*	551*	2,522	0.04	0.06†
Total	9,282	34,864	0.06	0.11

* 7 months. † Estimated for year.

influence the mortality which may follow any type of treatment. Our information regarding such data extends only from July, 1933, when detailed questionnaires were first distributed with the vaccine. While the information is far from complete, we have endeavored to tabulate returns for the 3 year period, July, 1933, to July, 1936, and to correlate them, in so far as possible, with data taken from the first six reviews made by McKendrick [2-7] for the League of Nations. Inasmuch as our data cover only Semple treatments, only the figures relating to killed phenol vaccine are taken from McKendrick's reports.

While the number of returns from Alabama on which these data are based is necessarily small in relation to those given by McKendrick, we feel that they are reasonably representative. The

TABLE II

Analysis of Questionnaires, July, 1933–July, 1936
Types of Exposure Among Those Receiving Vaccine

	Alabama		McKendrick *	
	Based on	%	Based on	%
Dog, Biting Animal	8,879	87.0	230,762	87.9
Laboratory or clinical diagnosis of rabies on biting animal	8,766	61.0	220,894	11.1
Location of bite	5,698	..	136,022	..
Head	....	5.7	.....	5.4
Trunk	....	1.8	.....	3.5
Arm	....	67.3	.....	36.8
Leg	....	25.2	.....	54.3
"No visible lesion" following exposure			230,516	6.9
Exposed but not bitten	5,906	48.5		

* Figures compiled from first 6 reviews of McKendrick [2-7] as published by the League of Nations, only those treated by phenol killed vaccine are included.

proportion of bites by dogs in both instances is practically the same. Dogs were the biting animal in Alabama in 87 per cent of 8,879 returns, and in 87.9 per cent of 230,762 returns reported by McKendrick. In Alabama 61 per cent of animals received a positive laboratory or clinical diagnosis of rabies, while in McKendrick's series only 11.1 per cent were so diagnosed. From this difference it would appear that treatments given in Alabama followed exposure to rabid animals more often than in McKendrick's series where a diagnosis of the animal's condition was less frequently made. The proportion of bites occurring on the head and trunk are relatively the same in both instances. Arm bites are much more frequent in Alabama and leg bites less so, than in the localities from which McKendrick obtained his information. These differences may be partly explained by the wider variety of biting animals in Europe and Asia but more likely represent differences in exposure of the arms and legs due to different methods of travel. In Alabama travel is probably less often by foot or by bicycle, and is most often by automobile. McKendrick reports 6.9 per cent as taking treatment when "no visible lesion" existed. In Alabama 48.5 per cent of 5,906 treatments were administered to persons who were "exposed but not bitten," however, in the majority of such instances visible lesions (cuts, scratches, abrasions) were subject to contamination with the saliva of rabid animals. These latter figures are by no means directly comparable but seem to indicate that more people in Alabama probably take treatment without being actually bitten than in the localities from which McKendrick obtained his data. These latter circumstances favorably influence our mortality rates among treated cases for such individuals are subject to very little risk.

RACE

McKendrick (1935) [7] found that among those treated the mortality for non-Europeans was 4.5 times that for Europeans. He has shown that a number of factors such as the location and severity of the bite, the time interval before beginning treatment, and methods of diagnosis, play important parts in this racial difference. To quote McKendrick (1934) [6]:

> It would appear that no single one of the factors which reduce the racial difference in mortality is in itself sufficient to account for the racial difference, but that they all participate in it.

In Alabama 90 per cent of treatments are administered to whites and only 10 per cent to negroes. Applying these percentages to the full period of study and considering the extent of the population (white and colored) this means that whites take treatment 6 times more frequently than the colored. Despite this fact, the rabies mortality rate per 100,000 for whites exceeds that for the colored. Furthermore, negroes are more often exposed to rabid animals than whites because the negro has ordinarily more dogs per household, he lives in closer and more intimate contact with these animals, and he is continually taking in stray animals.

A partial explanation of what, at first hand, may appear to be a racial difference in susceptibility to rabies lies in the fact that (1) some of the poorer whites, and many negroes neglect treatment when actually bitten by rabid dogs, (2) the majority of such persons are not infected, and only a relatively few develop the disease, (3) as compared with the colored, the white population receiving treatment is diluted with large numbers of individuals who have not in reality been exposed. This largely accounts for a mortality rate of only 0.05 per cent for treated whites and 0.16 per cent for treated negroes. It further demonstrates a tremendous

waste of vaccine that might better not have been given.

VACCINE PARALYSIS

Following the administration of 25,064 Semple treatments local reactions, usually erythematous patches at the site of injection, have been occasionally reported. One case of abscess formation was relieved by drainage. On one occasion virulent hemolytic streptococci were injected into 5 patients by a physician who used the same unsterilized syringe and needle for all when giving the 14th dose. Four paralytic accidents have occurred with Semple vaccine, involving 2 children and 2 adults. One was of the Landry type; none were fatal. One completely recovered, 3 have marked residual paralysis. Though 1 case was diagnosed as poliomyelitis, for purposes of record we would rather consider all as due to the vaccine. Paralytic accidents occurred in the proportion of 1 in 6,300. McKendrick (1935) [7] in his 6 reviews found the incidence to be 1 in 10,152 for killed phenol vaccine.

FATALITIES

Of the 42 fatalities from rabies, 21 had received antirabies vaccine while 21 had not. Sixty-two per cent were male; 48 per cent were children under 13 years of age; 63 per cent were rural; 71 per cent were white. As regards age and sex, distribution was approximately the same among treated and untreated, and among white and colored. Among the whites 53 per cent received treatment: among the colored, treatment was administered to 42 per cent. Forty-four per cent of rural cases and 60 per cent of urban cases were treated.

Data regarding the type of exposure among the 21 treated cases are shown in Table III. All were known to have been bitten, though complete information regarding the severity of biting is lacking. Bites were known to have been severe in 12; multiple in 6; 8 were on the head, and 7 on the arm, hand, or fingers. None were known to have occurred on covered parts of the body.

TABLE III

Severity of Biting

	21 Treated Cases	*21 Untreated Cases*
Severe	12	3
Not severe	..	4
Not reported	9	14
Single bites	11	6
Multiple bites	6	2
Not reported	4	13
Bite on head	8	3
arm	7	4
trunk	1	..
leg	3	..
Not reported	2	14
Bite on uncovered parts of body	18	7
Bite on covered parts of body	..	..
Not reported	3	14

Complete or reliable information among untreated individuals is lacking for in the vast majority the possibility of rabies was not considered until the disease had actually developed. Most likely all untreated cases were bitten, though in 3 no definite history of an actual bite was obtained. One was a child of 3; 1 a man of 63, a stranger in the community about whom little was known; 1 was a man of 80 who developed rabies 2 days after "doctoring" a rabid dog, but he unquestionably received his infection at least several weeks earlier. The untreated group also includes 3 individuals who took only several injections of vaccine. One received 2 injections, 1 received 3, while the third individual received 4 injections in the 4 days preceding the development of symptoms. Quite obviously those cases do not represent vaccine failures.

TABLE IV

Fatalities Among Treated and Untreated Cases

	Interval Between Biting and Administration of Vaccine			Incubation Period						Duration of Disease			
	Days			Weeks		Months				Days			
	1–3	4–6	21	2–3	3–4	1	2	3–6	12	Not reported	2–7	8–14	21	Not reported
21 Treated cases	14	6	1	3	10	2	..	6	..	..	13	1	1	6
21 Untreated cases	..	..	..	6	3	4	2	2	1	3	13	3	..	5

Among the 21 cases representing vaccine failures, treatment for 20 began within 6 days after exposure, 1 after 3 weeks. The short incubation period of 2 to 4 weeks in 13 treated and 9 untreated cases indicates that the degree of infection was such that vaccine could hardly have been expected to save many of these individuals. Data regarding the duration of disease are not remarkable except that the apparent early death in some cases is more likely due to late diagnosis. One doubtful case complicated by German measles and jaundice lived 3 weeks after the symptoms of rabies had supposedly developed. It has been included although the diagnosis is seriously questioned. When suspected cases of rabies live beyond the second week it is usually time to change the diagnosis.

MORTALITY RATES AMONG THE TREATED

A total of 9,800 Pasteur treatments were given with 11 deaths, a mortality of 0.11 per cent. A total of 25,064 Semple treatments were administered with 10 deaths, a mortality of 0.04 per cent; 2,783 of these treatments were obtained commercially while 22,281 were prepared by the State Health Department. The total mortality among 34,864 treated cases was 0.06 per cent.*

These rates compare most favorably with those given by McKendrick (1935) [7] who, in a summation of 6 analytical reviews for the League of Nations, reports a mortality of 0.38 per cent among 78,400 treated with dried or glycerinated cords, and a mortality of 0.61 per cent among 233,488 treated with killed phenol vaccine. To quote McKendrick (1935) [7]:

> It may seem surprising that figures amounting in all to about half a million are insufficient to demonstrate differences in efficiencies of various methods of treatment.

* If all persons not actually bitten are eliminated, the number of treatments is reduced approximately one-half (48.5 per cent), and the mortality rates are doubled though still compare favorably with those of McKendrick.

TABLE V

Mortality Rates with Different Vaccines

Vaccine	Years	Number Treated	Number Deaths	Mortality Per cent	McKendrick Mortality‡
Attenuated cord, Pasteur (commercial)	8*	9,800	11	0.11	.38%
Phenol killed, Semple	7*	25,064	10†	0.04	.61%
Total	14½	34,864	21	0.06	

* For the last 6 months of 1929 both Pasteur and Semple treatments were administered.
† Includes the 1 case in which the diagnosis was doubtful.
‡ All 6 analytical reviews.

In view of this, no statement regarding the efficacy of the vaccine used in Alabama seems warranted beyond the assertion that the results obtained appear satisfactory.

SUMMARY

Despite a sixfold increase in rabies among animals in Alabama, human mortality has been maintained at a low figure by a similar increase in the administration of antirabies vaccine to those exposed. Circumstances of exposure, as tabulated from 8,879 questionnaires, have been correlated with data taken from McKendrick's reports. Factors explaining what appears to be a racial difference in susceptibility to rabies are discussed. Case histories of 42 fatalities are analyzed. Vaccine paralysis occurred among 1 in 6,300 of those treated with Semple vaccine. Since 1922, 9,800 Pasteur treatments were administered with a mortality of 0.11 per cent; 25,064 Semple treatments were administered with a mortality of 0.04 per cent.

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Driver's License Law

IN most states no provision is made for the furnishing of evidence of physical or mental fitness of motor vehicle drivers. This condition is particularly deplorable since the National Safety Council has made available to all states a model driver's license code.

The importance of adequate driver's license laws is shown by a 9 years' trial. In this time, states having a standard license law have decreased vehicle death rates by an average of 20 per cent, while all other groups of states have increased their death rates, some more than 30 per cent. The committee recommends the adoption of the uniform driver's license law by all states, since this would be an additional factor in traffic safety and would not only give the states some control over the driver with physical and mental defects but would be of additional value in collecting records of the chronic law violators, the reckless, and the "accident-prone." Persons having bad records would be examined for physical, mental, or psychologic abnormalities with a view toward correction or possible compensation for the deficiencies, or if this is not possible licenses may be revoked.—Preliminary Report of Committee to Study Problems of Motor Vehicle Accidents, American Medical Association, *J.A.M.A.*, June 19, 1937, p. 2138.

Nursing Services for Mothers and Children as Part of a Balanced Public Health Nursing Program*

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ALTHOUGH the health of mothers and babies depends, of course, upon the general community provisions for public health, we know from long-accumulated evidence that special provisions, too, are necessary within the framework of the total public health program because of the special conditions of health peculiar to maternity and early childhood.

These conditions of health, particularly identified with pregnancy and parturition and with infancy and early childhood, require a special approach, intensive consideration and treatment.

However, special approach in this sense is not meant to imply service through a special program, agency, or worker, but rather particularization of emphasis and intense awareness of the characteristics special to maternity and childhood within a total family health service.

It is self-evident in the planning and administration of public health nursing services that special attention must be provided for certain phases of the nursing services on the basis of special needs arising out of actual health conditions rather than on the basis of external factors of the program, such as special funds or budgets or special agency or personnel interests.

Actual health needs are the only real determinants; all others are artificial and usually hinge upon expediency rather than soundness of service. We know, for instance, that disease is selective as to age; that people have their health affected, or die, from different causes at different ages. Some causes are definitely identified with early infancy, some with later childhood, some with childbearing. A comprehensive, well balanced public health program, then, will make allowance for these differences by providing special care and attention for each age group. It is entirely possible to reconcile special health provisions with a generalized health program; just as it is possible to reconcile intensive attention to special needs, such as those arising out of maternity and childhood, with a general public health nursing service, given by generalized public health nurses.

* There seems to be a growing tendency toward regional conferences of professional groups in the field of public health, in lieu of or as supplementary to larger meetings of national scope. Such conferences have proved effective because of the possibility they offer to give more intensive consideration to issues of a concrete nature and of immediate concern to the conferees.

This paper was presented at such a regional conference of directors, or their equivalent, of public health nursing services in state departments of health of the 9 states which comprise the northeastern consultation area for medical and public health nursing consultants of the U. S. Public Health Service and the U. S. Children's Bureau.

In terms of present-day public health nursing in state departments of health, it is interesting to reflect upon the various types of organization and administration which exist, as an index to the degree of comprehensiveness and balance of public health nursing service which such administrative provisions reflect.

Needless to say, public health nursing in the various states of this vast and complex nation is represented by several types of organization and channels of administration within the state departments of health. There are differences in stage of development, origins, and motivations, not only between various sections of the country but between states within a given section as well. The situation in the 9 states of the northeastern area here represented, before the social security provisions went into effect, was as follows:

1. There were states where all public health nursing originated in, and has remained an adjunct of one administrative unit or bureau —notably a bureau of child hygiene.
2. There were states where public health nurses were attached to each of several administrative units or divisions, such as divisions of child hygiene, tuberculosis, syphilis, and gonorrhea.
3. There were states where public health nursing was administered through a division or unit of its own, the intention being to make public health nursing available to all other divisions or bureaus of the state health department.
4. There was in one state, a unit or division of public health nursing, presumably giving service in all branches of public health, where public health nurses were also an adjunct of another division—namely, the division of maternal and child health.

It is significant to note that in several states where situation No. 1 prevailed before the passage of the Social Security Act, divisions of public health nursing have since been created as administrative units, separate from the maternal and child health division though serving that division as heretofore.

The reason for dwelling on the administrative provisions for public health nursing in state departments of health, before and after social security legislation became effective, is to show that there is a tendency toward the broadening of the concept of public health nursing service, rather than restriction or specialization, in spite of the fact that there are, to a greater extent than ever before, special emphases, as a result of special federal and state appropriations for care of mothers and children.

In other words, it is becoming clearer, through experience, to public health workers and others that public health nursing services to one age group or for any single type of condition is only as good as the total provisions for health of the family and the community. No one type of public health nursing service can be isolated and strengthened much beyond the total public health nursing service of the community. However, service must be planned proportionately, with the needs peculiar to various conditions and ages as the criteria for emphasis.

Whatever the administrative arrangement for conveying public health nursing services, we are all faced with the same dilemma—the same old dilemma, let me add. How, with the forces at hand can a complete, well rounded, public health nursing service be made available to all families requiring such service, at the same time giving liberal, concentrated attention to the many special health conditions connected with maternity, infancy, and childhood?

Maternity and child care have been a part of public health nursing since public health nursing began—that is, they have been included to some extent both in terms of numbers of individuals served and also in terms of amount, degree, and quality of care given the individual served.

Even so recently as 1934, the public

health nursing survey by the National Organization for Public Health Nursing[1] revealed some striking gaps or deficiencies in maternity nursing service, as well as qualitative strengths in the one phase of maternity care to which public health nursing has given most attention. It showed:

1. That although prenatal care is more extensively given than any other type of maternity nursing service, and better given than other types of public health nursing services, early contact with pregnant women is still more of a theory than an accomplished fact. A complete plan for maternity nursing service presupposes getting all the pregnant women of the community under medical care early in pregnancy, but the degree to which this is accomplished in any given community is still largely guesswork.

2. That nursing service for home deliveries is being provided to a very small extent in cities and practically to no extent in rural areas. And yet we have known for a long time that conditions associated with the delivery itself account for a high proportion of infant deaths and illnesses. Hence the combined efforts of all types of health workers, one would suppose, might be directed to making this particular stage of childbirth as safe as possible, in the home and in the hospital. The fact that about one-third of neonatal deaths are attributed to infection acquired before, during, and after childbirth should in itself give some clue to the probable necessity for nursing service at this time.

3. That nursing care of the mother directly after childbirth, though available more extensively than care at delivery, is still not provided in many homes. Comparatively few public health nursing agencies, according to findings of the survey, provide definitely and consistently for instructions and help with arrangements for the medical examination of mothers and babies after 6 weeks or so immediately postpartum, and yet this is generally conceded to be one of the most important measures for maternal and infant health protection.

When we consider the field of child health we are confronted with the discomforting realization that educational content in child health supervision services, as indicated by the criterion, "teaching," is consistently meager and inadequate; as the age ascends the inadequacy increases; that is, the educational content in infant health supervision is low; in preschool health supervision it is lower, and in school health supervision it is lowest.

At the risk of seeming to introduce too negative and skeptical a note into this consideration of public health nursing as it relates to maternal and child care, it seems important to take into account what we know of our own professional performance in these fields. Although public health nursing is only one factor, dependent on many others, in this situation of providing to all mothers and babies a good quality of care and can only develop in relation to economic, social, and medical factors, nevertheless there are qualities intrinsic to public health nursing performance within our control as a professional group.

The fact that the situation in regard to deaths and illness among mothers and babies has remained practically unchanged for 20 years in spite of the combined efforts of health workers is always before us as the supreme challenge.

"Why does the death rate among mothers due to causes of childbirth remain so unnecessarily high?"

"Why does the high death rate among babies under 1 month persist when rates have been lowered among babies of 1 month to 1 year?"

"Why do so many babies die after 1 year of age?"

These are some of the questions always before us when we participate in planning and taking part in public health programs—federal, state, or community. For mothers and children being merely alive is only a small part of the whole story of being alive and well.

The effects of a depression, which are still very real to us, are known to be more devastating to children than to adults, not necessarily in terms of death, but in terms of development and stamina. The effects of deprivation are

deep-seated. They arise from worry and tension resulting from family insecurity as well as the physical deprivations—poor housing, lack of adequate food and clothing, and other necessities of life. "The less a man has the more he needs" can be said to pertain to health services as well as food, clothing, and shelter, and presents an extra responsibility to us for more and better nursing care.

This conference is intended primarily to give those who are directing public health nursing services in the states of this region an opportunity for exchanging ideas at a period when state and federal provisions are in effect for extending and improving public health service.

I shall, therefore, take time only to restate as a possible basis for discussion some of the concepts and principles of public health nursing, pertinent to maternal and child care, which have evolved from our own professional experience.

There is naturally, I suppose, still some disparity between the theoretical acceptance of these principles and actual application and adaption to the job at hand.

A comprehensive, well balanced public health nursing service for the family and community rests primarily upon adequacy of personnel, both quantitative and qualitative.

The census of public health nurses in the United States, as of January 15, 1936, shows the ratio of public health nurses to total population by states in the 9 states of the northeastern area (see Table I).

For the United States as a whole, 1 nurse to a population of 7,714 was the ratio as of the same date.

For 5 of these northeastern states the ratio was 1 nurse to a population of 3,000 to 4,000, whereas for 4 states it was 1 nurse to a population of 4,700 to 6,900. Although an arbitrary population ratio is recognized as only a crude index for measuring the amount and kind of public health nursing service required, it does indicate quantitative inequalities of distribution in any given section. Interestingly enough the 9 states here considered represent the highest ratio of public health nurses to population, collectively and separately, in the United States. There are only 5 other states with populations per nurse under 7,000, and 2 of these (Delaware and Maryland) are near the 9 states here discussed. For these 5 states the population per nurse is as follows: Delaware, 5,400; Michigan, 5,400; Maryland, 6,200; California, 6,600; and Ohio, 6,800.

TABLE I

State	*Population per Nurse*
Vermont	6,900
Maine	6,500
Pennsylvania	6,400
New York	4,700
New Jersey	3,900
Massachusetts	3,700
Rhode Island	3,500
New Hampshire	3,300
Connecticut	3,100

From this we see that the problem of public health nursing from the point of view of quantity alone is not the most pressing in these states. However, the lack of centralization of organization, supervision, staff education, qualification standards, etc., which results from the large number of small (having 1 or 2 nurses) private and official public health nursing organizations in most of these states has a tendency to diminish quality of service since it is unlikely that any one of the small-town agencies which predominate here can possibly afford to provide the conditions most favorable for the development of its public health nursing. For this reason, adding to the public health nursing resources and personnel of the state health departments and giving

greater emphasis to district and unit health organization, which have been made possible through the Social Security Act, should have a desirable effect on these highly local services.

A careful study of needs of the community in relation to numbers of public health nurses and types of service, based on all the factors involved—economic condition, industry, topography, climate, race, and nationality, has never yet been attempted.

However, the inference is that, with the additional public health nurses who have been appointed in the states through social security provisions, the ratio of nurses to population in the 9 states is now even higher than here indicated.

Qualified personnel, with provisions for education and supervision continuously, progressively available are fundamentals in a public health nursing service.

The survey of public health nursing showed us that the quality of performance of the public health nurse is in direct ratio to the amount and kind of nursing supervision provided. I shall not dwell upon this any further than to comment that we believe that there is decidedly a place for specialized supervision, educational rather than administrative in character, within the scheme of public health nursing administration. This specialized supervision, in the field of maternal and child health, for example, if filtered through the channels of generalized supervision, will not only enhance the content of nursing service but will insure balance through proportionate emphasis on quantity and quality.

State departments of health of the region here represented are more and more making this supervision available for their own staffs as well as for other public health nurses of the state, chiefly those working alone—by the appointment of educational supervisors or directors, or by the appointment of specialized nurse-consultants or supervisors.

A comprehensive, well balanced public health nursing program carries the implication of equally adequate provisions for care in all stages of the maternity cycle: antepartum, intrapartum, and postpartum. Although, by and large, in public health such complete provisions have not been prevalent enough for us to have obtained tangible evidence as to their superiority, we can assume that complete service of good quality will be more effective than partial service.

The public health nursing services for mothers and infants can obviously not progress or develop fully where medical, economic, and social resources are undeveloped. It is not enough, then, for us to contribute only our technical best under present circumstances; we have also a part to play as supposedly enlightened members of society, in influencing the larger circumstances implied in social security, which affect provision of good, complete care.

Howard Odum of the University of North Carolina says, "Social security may be an epochal term or a whimsical technic depending on how well it is administered by the state agency responsible for it." This, I believe, can be applied to all types of service involved in the attainment of social security, public health nursing included.

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Asphyxiation and Death in Oxygen Deficient Air

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ON August 28, 1935, an employee of Mann Brothers Linseed Crushers Company, Buffalo, N. Y., was sent down into an oil reservoir that had been closed for 3 months, to clean out the " foots " at the bottom. The only means of entrance was a manhole about 18" in diameter through which a ladder was placed. When the man had gone about half-way down the ladder he collapsed and fell into the oil, apparently unconscious. Another employee followed in an attempt to rescue him and suffered a similar fate. A third employee started down cautiously, but when he noticed difficulty in breathing, climbed out. Although weak and exhausted he recovered quickly. The Fire Department was called and a fireman, equipped with a gas mask, entered the tank. He immediately lost control of himself and fell to the bottom. A second fireman, equipped with a gas mask, but with a line about him, descended. He, too, became helpless, but was taken out at once. After breathing fresh air for a time, he regained his senses. By the time the 3 victims were removed from the reservoir, with the aid of grappling hooks, about 20–25 minutes had elapsed and they were dead.

Investigation of the conditions in the plant revealed that there never had been a cyanide fumigation, nor the possibility of the presence of carbon monoxide resulting from an incomplete combustion or leak in the gas lines. There was no odor of hydrogen sulphide, arsine, or any other irritating gas. The only thing noticeable was the odor of fish oil, a condition which comes about naturally when linseed oil stands for some time with water.

It was stated by the employers that employees had been entering the oil reservoirs for the last 20 years and had never experienced trouble before. There were 5 other reservoirs of the same type in which conditions were apparently normal in so far as the ability of the men to work in them was concerned.

On questioning the plant foreman on the method of oil purification, it was learned that a large volume of oil, after it came from the presses, was treated with dilute caustic soda, allowed to settle, neutralized with sulphuric acid, and the resulting " foots " pumped into the tank where the deaths occurred. The clean oil was pumped into the other tanks. The fact was, therefore, fairly well established that the " foots " contributed in some way to the conditions that caused death.

Samples of air were collected in various parts of the reservoir by means of a long rubber tube attached to a pole long enough to reach to the farthest ends of the tank. The tubing was connected to gallon bottles filled with water, which had bottom and top outlets.

Tests made for combustible gases in the tank with the M. S. A. apparatus showed a zero percentage until fresh air was passed into it. Combustible gases then registered 3 per cent indicating absence of sufficient oxygen for combustion. Lighted candles attached to wire when placed in the tank were immediately extinguished. Two white rats died in about 10 minutes when lowered into the reservoir.

The air samples previously collected were analyzed by a Morehouse apparatus with the following average results for 5 samples:

	Per cent
Oxygen	1.6
Carbon Dioxide	10.8
Hydrogen	4.9
Nitrogen	82.7

The blood of the victims, which was definitely fluid, was tested for carbon monoxide by the Sayres tannic acid method, the spectroscope, and the Van Slyke monometric blood-gas apparatus, with negative results. One hundred c.c. portions of the blood acidified with tartaric acid were steam distilled into N/2 sodium hydroxide to collect any hydrocyanic acid that might be present. The alkaline solution was evaporated to a very small volume and tested for cyanide with silver nitrate and the prussian blue method, with negative results.

From these results and the analysis of the air in the chamber it was quite evident that the men had died from the effects of oxygen deficiency and the presence of a carbon dioxide tension that far exceeded that in alveolar air.

In order to determine what brought about this oxygen deficiency the oily mass in the bottom of the reservoir was given a complete chemical and bacteriological examination, the results of which were in complete accord with the facts already known.

Microscopic examination of the material showed the presence of growing yeast cells, molds, and bacilli.

The composition of the mixture was as follows:

	Per cent
Water	26.3
Soap	10.2
Oil	58.3
Protein	4.2
Undetermined	1.0
Water soluble acids	0.24
Acid value of oil	140
Saponification value	178

The presence of protein matter seemed to be the unusual element in the mixture and was isolated by first washing with toluol to dissolve the fatty matter and separate the water. It was then washed several times with hot alcohol to dissolve the soap. The material had the same composition as linseed meal and was, undoubtedly, that portion of the meal that had passed through the filter presses with the oil.

This meal when inoculated with ordinary baker's yeast underwent rapid fermentation giving off about 95 per cent carbon dioxide and 5 per cent hydrogen. Linseed meal, obtained from the plant, fermented in the same way when mixed with ordinary yeast.

The fact that there had never been any trouble with these tanks before naturally made it appear quite mysterious to the operators of the plant, but this accident was quite plainly the result of the right combination of a varying set of conditions. The reservoir had been closed for 3 months; the weather was warm; there was water and protein matter in the tank. The very fine linseed meal, which had passed through the filter presses with the oil, had accumulated in the bottom of the tank and had begun to ferment, giving off carbon dioxide. Carbon dioxide, being a much heavier gas, underlaid and displaced the air upward and

the drying property of the linseed fatty acids further diminished the oxygen content.

The trouble was easily corrected by pumping air into the tank but, had the well known rule been observed—that no person be allowed to enter any tank or reservoir without a line tied about him and a second person present to pull him out in case of trouble—3 lives would have been saved.

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"WHILE many of the specialties are overcrowded there is still a shortage of well trained, experienced physicians in public health work. . . . The field of public health for physicians is expanding rapidly. The public itself is demanding better community care. Examples of agencies where public health physicians are used are the U. S. Public Health Service, Children's Bureau, state, city, and county health departments, nonofficial health agencies, and foundations, insurance companies, and industry." Medical men . . . "have focused their attention so sharply on their own individual patient and his disease that they have failed to realize that around them are community problems and community responsibilities about which they should know and in which they should share."—Dr. John L. Rice, 39th Commencement of Cornell University Medical College.

Rat Surveys and Rat Proofing

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ACCORDING to data obtained from almost world-wide sources, and published in many of the pamphlets issued by the U. S. Public Health Service and other government agencies, including bulletins issued by the U. S. Department of Agriculture, the rat is not only the least useful, but is perhaps one of the most dangerous and expensive of nature's parasitic animals living at the expense of man. Of all disease-bearing animals, the rat probably stands supreme in the cost it has entailed upon mankind in lives and money.

It is estimated that in any given community, the rat population equals that of the human inhabitants. They are very prolific, producing on an average of 5 litters a year, of from 6 to 9 each. The cost of feeding a rat is placed at ½ cent per day, or almost $2 per year. Assuming that the estimated rat population in the United States is equal to the number of persons shown by our last census, the cost of feeding rats will reach the staggering sum of $240,000,000 annually. In addition, they pollute and render unfit for consumption quantities of supplies many times in excess of what they eat, and destroy all kinds of articles and merchandise.

Since such economic losses and sanitary risks are shared by almost everyone the world over, whether or not this fact is known and appreciated, the hand of man, in all lands, has been raised against the rat. Almost every known means has been employed to reduce their numbers, or to exterminate them. Usually the interest of the average citizen in this matter becomes aroused only when it is brought to his own door, and either he or his family are annoyed by their presence, or they sustain economic loss. It expresses itself in the periodic drives, trapping and poisoning campaigns which are carried out from time to time.

From what is known of the breeding habits of rats, their fecundity, their resourcefulness, their adaptability to almost any condition, and their ability to subsist on any kind of diet (their bill of fare includes almost anything in the vegetable and animal kingdom), the magnitude of the task of rodent control can be better appreciated. The problem is one of grave public concern and can be solved in whole or in part only by continued and persistent effort in carrying out measures that are known to produce effective, permanent results, so that freedom from rat life will be the normal state. It is the maintenance of this condition rather than the periodic reduction of the rat population that will confer the highest degree of protection to the public health, as well as lessen economic losses.

The problem of control is three-sided. It concerns health, economics, and technic.

The public health official, whether national, state, or municipal, is interested in permanent control because it aids in reducing the risk of the trans-

mission of certain diseases, principally bubonic plague and typhus fever. Prevention of the spread of these diseases is his main objective.

On the other hand, owners of property and merchandise are interested primarily in reducing the destruction of supplies of almost every kind by rats. Prevention of economic loss is their objective.

The solution depends largely on the application of technical methods and the use of common sense. As one authority says: "The permanent exclusion of rats involves primarily the proper construction, repair, and upkeep of buildings, and keeping the premises in a sanitary condition."

Rat life exists and persists in buildings and elsewhere because of certain favorable structural and incidental conditions, which enable them to hide, build their nests, and breed. If these conditions are changed, either through the employment of a different design, construction methods, or materials impervious to gnawing by rats, or altered by repair work so that the harborages are either eliminated or protected in such a manner that rats cannot get into them and build nests, and breed, colony rat life will be permanently controlled.

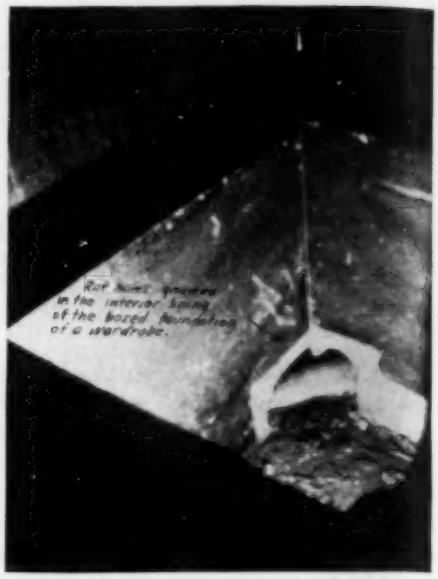

FIGURE II—Example of incidental rat harborage existing in the boxed foundation of a wardrobe. Note rat excreta and nesting material on floor and large rat hole in the back corner. Several nests containing baby rats were found in this space.

FIGURE I—Example of structural rat harborage existing in the enclosed spaces formed by double walls and raised flooring

The first step, therefore, is to become thoroughly acquainted with the conditions which favor rat life (that are known as harborages), to be able to recognize them and to appreciate the effect which their existence has on rodent propagation.

There are 3 general types of rat harborages: (1) structural, (2) incidental, and (3) temporary. Examples of the first are double walls, spaces between floors and ceilings, and beneath basement floors, or those that rest flat on the surface of the ground.

Those of the second are furniture, fixtures, and equipment, things that are incidental to the use that is made of

the building or its subdivisions, and are installed therein.

Examples of temporary harborage are mass storage of material or merchandise, rubbish heaps, old furniture, odds and ends piled in cellars, attics, closets, etc. Any such material if left undisturbed for periods of several weeks can and will be used for homes and breeding places by rats.

The preliminary work in any campaign of rat control is that of survey. The conditions existing in each district and subdivision must be known; therefore, inspectors should become conversant with the various types of harborages, be trained to recognize them and to evaluate their relation to rat propagation. They should learn how to look for signs of actual rat infestation of premises, such as fresh excreta, rat gnawings, marks of rat runs, or damaged merchandise and supplies. The physical state of the excreta found will usually tell whether the infestation is of recent origin. If the excreta is of putty-like consistence and can be rolled out like a pill mass, it is more than likely that live rats are present. The quantity of excreta found will aid in determining the extent of the infestation.

The port sanitary authorities at Liverpool, England, some years ago carried on a number of very interesting experiments in order to determine the quality and quantity of excreta passed during a given time by captive rats. Each rat used in the test was confined in a separate cage which had a removable bottom pan. One group was fed on grain products, another on fruits and vegetables, while a third was given only meats and fish. The rats fed on grain products passed the greatest amount of excreta, averaging about from 70 to 75 pieces per 24 hours, while the group fed on fruits and vegetables averaged less than 50 pieces for 24 hours.

Knowledge of this character is of value to an inspector or surveyor and aids him in forming an intelligent estimate of the extent of the infestation.

The size of the various pieces of excreta discovered will determine whether family life is present and litters of young are being reared.

It will thus be seen that it is possible in survey work to learn 3 valuable

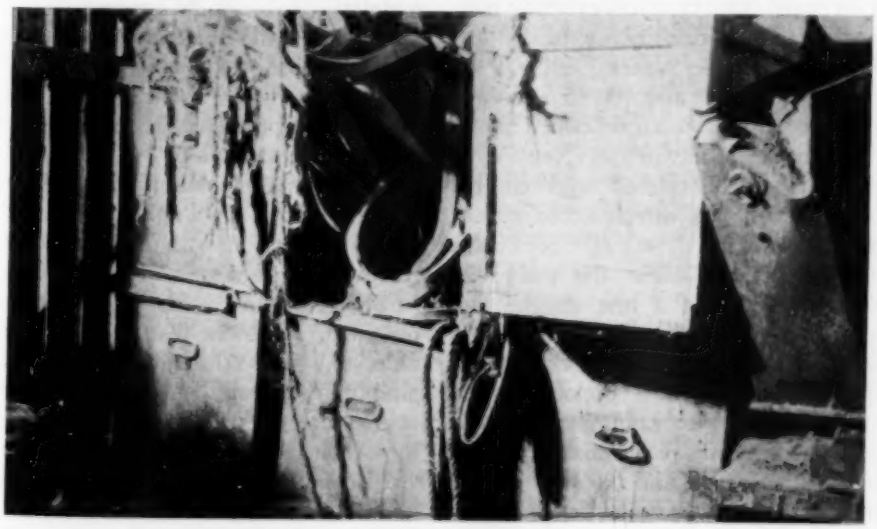

FIGURE III—Example of rat harborage of the temporary type existing in discarded material usually stored in attics and cellars

things through the examination of excreta found: (1) Whether the infestation is an old one or of recent origin; (2) from the quantity and location, the probable extent of the infestation; (3) from the various sizes of excreta, whether families of rats are being reared.

It is not so easy to differentiate between an old and recent rat run. By washing off a small area of a well defined run or by covering it with paint or white chalk, it will be easy to check up on any section where doubt exists as to present infestation. The rat is such a creature of habit that he will continue to run over the beam or pipe where the original run was located.

Recent gnawing into wooden base boards and sheathing around pipes and other lines can easily be determined by its fresh appearance and the presence of shavings or débris. The same will be found to be true to a great extent of gnawings into and damage to merchandise and food supplies.

Properly conducted surveys of buildings and structures will disclose the following facts: (a) the absence or presence of actual infestation and its extent; (b) the type of existing harborage and the coincidence of its use by rats as breeding places.

During 1934 and 1935 surveys similar to what has been described above were conducted in Greater New York as a part of the typhus fever control project which was directed and supervised by officers of the U. S. Public Health Service. While the main objective was to get a line on the flea index of the rats living in the various districts of Greater New York, advantage was taken of the opportunity to get data relating to rat infestation and the existence of rat harborage in the buildings surveyed and trapped. Some interesting facts were revealed as to both.

The principal types of harborage discovered coincided with those found by other investigators in similar surveys: double walls, space under floors, the enclosed space formed by sheathing in the ceilings, in cellars, bins and lockers, particularly when they had a raised floor, the interstices between the stones of foundations, burrows formed in dirt floors and cellars, in insulated sections of refrigerators, in mass heaps of supplies and rubbish.

The points of entry into the enclosed spaces which formed harborages, where the rat either found an opening or made one for himself by gnawing, were noted and, in many instances, were photographed. Information of this character is all important. No corrective measures can be successfully applied until the weak or vulnerable spots and the factors that make them so are known and taken into consideration. They may be the result of poor design, faulty construction, use of non-rat-proof material, or the manner in which fixtures, etc., have been installed.

If of design, the permanent correction must be brought about by changes which should be made in drafting rooms. If the result of the use of materials that can be gnawed by rats, the remedy will be found in the selection of those that have been proved to be rat proof. Non-rat-proof material can be protected at gnawing margins by metal flashing.

Some tests of materials have been made by the U. S. Public Health Service in connection with its work of the rat proofing of vessels. It was rather a surprise to note some of the results obtained. In some instances rats were able to gnaw through medium soft aluminum sheets. Lead sheets, of course, are not rat proof and openings into them are easily made.

In conducting these tests, the colony of wild rats were isolated in a rat proof room. They were given living conditions similar to those found on ships

and in houses, the use of double walls, lockers, etc. and fed regularly. In most instances they were undisturbed for several months and allowed to bring up families. When it was desired to test a certain material, it was made fast to the end of the test box, which was entirely covered with wire mesh except on one side. Food was stored in this test box, the open end closed with a strip or sheet of the material to be tested, and placed in the rat proof room. For a week previous no food had been given to the rats living in the room so that they would feel very strongly the hunger instinct, and be immediately attracted to the test box with its visible food contents. Usually the rats would surround the box and try to find an opening which would permit them to enter and get at the food. They soon realized that the heavy wire mesh effectively barred their entry and that their only chance was in gnawing along the edges of the sheet material and making a hole big enough to enter. If they were successful, even though it took several days, the material would be considered not rat proof, and its employment in construction discouraged.

Construction and installation methods —There are many instances of heavy infestation of buildings ashore as well as ships afloat that have resulted from failure to observe one of the fundamental rules of rat proofing, *i.e.*, that there should be no openings greater that ½" in any double wall sheathing. Carelessness of workmen in not making tight fits or closing openings through which pipes, beams, electric cables, etc., pass, are responsible for many opportunities given to rats to gain access to harborage.

The general rule to be applied in the rat proofing of buildings, so far as the exterior is concerned, is to make them secure from invasion by protecting all known avenues of ingress, in the foundations, outer walls, doors, windows, various pipe and cable supply lines, down spouts, light and air shafts, and other roof openings. This gives what is known as the outer line of protection. It can be seen how important it is to know that the material which has been employed is of an anti-gnawing or rat proof character, that this has been installed in an approved manner, and that it is being maintained in good repair.

Absolute reliance should not be placed on the protection afforded by the rat proofing of the exterior of buildings since there are always natural openings, such as doors and windows, to be considered. It is here that the human element enters into the equation, and this is always the weakest link in the chain of protection. Time and time again it has been found that it cannot be depended upon. Rats come into the buildings through the doors and windows and proceed to avail themselves of the facilities offered in double walls, beneath floors, etc., for home making. We have records of a school building that was invaded by rats through a window in the basement, and quite a colony were living in boxed settees, pipe tunnels, etc.

Exterior rat proofing of small buildings can be accomplished by elevating the structure 2 or more feet from the ground, exposing the ground area beneath and keeping it clean and free from trash, dunnage and rubbish. The usual protection should be given to the natural and other openings. If the building is of double wall construction, they should be shut off by stopping the openings left between the studs and floor joists just above the sill. Various classes of material are employed for these fills, such as 2" x 4" wooden beams, sheet metal, brick, and concrete.

Rat proofing work in the interiors of older buildings which are infested

may be accomplished in an inexpensive manner if the plan of treating symptoms as they appear is followed. That is, to install metal collars, metal flashing, or other protective and anti-gnawing material over openings and holes leading into enclosed spaces and double walls that are used as harborages, and to continue this until all such openings have been properly protected and rat life has disappeared.

Where a structure is built on footings or foundations, these should extend at least 2′ below the surface and be of concrete or stone which has been cement-plastered to a smooth finish. Rats invade cellars and basements by burrowing under walls that extend less than 2′ below the surface. Experiments were conducted by officers of the U. S. Public Health Service some years ago to check up on the habits and activities of rats, and standard rat proofing work was outlined largely on the basis of their findings. Hundreds of captive wild rats were used in these tests, which were to determine to what depth they would burrow, their swimming radius, their ability to climb the various types of pipes, downspouts, exterior wall surfaces, their homing instinct, etc.

In addition, the ordinary everyday life habits of several hundred captive wild rats living under conditions similar to those to which they were accustomed on shipboard were observed and studied at Hoffman Island for almost 2 years. They were confined in a rat proof basement room, and during these 2 years none escaped. Eskey says:

"Rat proofing of buildings and the elimination of harborage near them not only will prevent man from coming in close contact with rats, but also will eliminate the most productive breeding places of the *X cheopis* (fleas)."[1] The flea is the transmitting agent of typhus as well as plague.*

While the observations of this and other plague experts as to the value of rat proofing as a permanent rodent control measure coincides very generally with our own experience, we do not delude ourselves with the idea that perfection has been attained, and that by the waving of this magic wand all the rats in a community can be made to disappear as in the legendary case of the Pied Piper of Hamlin. Moreover, it is felt that because of the knowledge acquired through surveys and studies, we have been able to put into effect a campaign based on sound scientific principles and a fair knowledge of rat psychology and habits.

If the persons responsible for the planning of rat proof construction, its incorporation in buildings, and its upkeep, will be alert, resourceful, determined, and as tireless in their efforts to "build out" the rat as we have found him to prevent his species from becoming extinct, permanent success is assured.

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* ["It has thus became possible to state in a general way that the disease known as typhus has two main manifestations—the first and better known is *true typhus*, a louse-borne disease of great communicability from one person to another in times of overcrowding among an unclean population, and characterized by its tendency to the formation of epidemics; the second *(endemic typhus)*, a disease primarily of rodents which is transmitted from rat to man by rat fleas. This manifestation of typhus is, seemingly, not transmitted from man to man direct and is therefore characterized by its tendency to remain endemic." *Manson's Tropical Diseases*, 10th ed., edited by Philip H. Manson-Bahr, Baltimore: Wood, 1936, pp. 218–220.]

Occurrence of O and H Agglutinins Following Subcutaneous and Oral Administration of Typhoid Vaccine

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THE literature contains many conflicting reports on the agglutinin response following oral administration of typhoid vaccines. Hofstadt [1] and Pyper [2] in agreement with Besredka report excellent agglutinin response following oral typhoid vaccination. Valentine [3] and Tuft [4] report very little, if any, agglutinin response. With this in mind it seemed worth while to make a comparison of the agglutinin response obtained in two groups of healthy students, one group receiving 3 doses of commercial T.A.B. vaccine; the other receiving 3 capsules of typhoral * on 3 successive days, the first dose being preceded by a capsule of dried ox bile.

TECHNIC

Many of the subcutaneous group and all of the oral group were bled prior to the administration of the vaccine. These sera were then tested for agglutinins by mixing them in serial dilutions with an equal amount of H antigen, and a duplicate series was mixed with an equal amount of O antigen.

The first series of tests were run in duplicate using O and H antigens prepared from the Rawlings strain and from a freshly isolated strain of *E. typhi*. After this first series when no differences were observed in the serum titers, the latter strain only was used.

The H antigen was prepared by washing the growth from the surface of a French square with saline containing 0.1 per cent formaldehyde. Enough of this suspension was made to run the tests for the entire series. It was diluted to match a silicate turbidity standard of 500.

The O antigen was prepared according to the method of White.[5] The organisms were washed off in very small amounts of saline; treated with several volumes of absolute alcohol; stirred at 56° C. for 1 hour; left in the refrigerator 4 days, and the bacteria removed by centrifugation and suspended in 50 per cent alcohol. This constituted the stock suspension of O antigen which was diluted to match the turbidity standard of 500 as indicated above.

The serum dilutions were from 1–5 to 1–1,280. The tests were incubated 2 hours at 56° C. and allowed to remain in the icebox overnight after which they were read with a reverse 12X ocular and recorded.

RESULTS

In the first series of 78 students, 26 received the vaccine by the usual subcutaneous method. Fifty-two received

* The typhoral was kindly supplied by the Eli Lilly Company whose coöperation we wish to acknowledge.

TABLE I

Twenty-six Students Inoculated Subcutaneously 4 to 5 Weeks Prior to the Test

	0	1–10	1–20	1–40	1–80	1–160	1–320	1–640	1–1,280
Antigen O	13	7	4	1	0	0	0	1	0
Antigen H	0	0	0	5	9	7	4	1	0

TABLE II

Fifty-two Students Received Oral Vaccine 4 to 5 Weeks Prior to Test

	0	1–10	1–20	1–40	1–80	1–160	1–320	1–640	1–1,280
Antigen O	48	0	3	0	0	1	0	0	0
Antigen H	33	1	5	7	2	4	0	0	0

oral vaccine and of these 25 had never received typhoid vaccine nor had had the disease. Among the 26 vaccinated subcutaneously, a preliminary test showed that none had O agglutinins; 2 only H agglutinins in a titer of 1–10. In the oral group of 25, who had never received vaccine, 2 had a titer of H agglutinins of 1–40 before vaccination. Twenty-seven of the 52 oral group had received subcutaneous vaccine 1–10 years prior to the oral vaccination; 19 showed H agglutinins, 3 of these showed O agglutinins. The highest titer given was 1–160. The majority gave titers ranging from 1–10 to 1–40. The results of vaccination in these two groups are tabulated in Tables I and II.

It is very readily seen that the response of H agglutinins to subcutaneous vaccination was marked, none failing to develop H agglutinins although the titers were not high. Thirteen also developed O agglutinins. Since 1 person only gave a titer of more than 1–40, and the majority a titer of only 1–10, this bears out the usual contention that vaccination does not cause the development of somatic agglutinins in large quantity. The 1 person who had a titer of O agglutinins in a dilution of 1–640 gave no history of having had typhoid fever and had never been vaccinated previously. After oral vaccination in the previously unvaccinated group, 23 remained completely negative. Two had a natural titer of 1–40 which did not increase. Of the 27 who had received subcutaneous inoculation prior to oral vaccine, 18 continued negative or showed no increase in titer. In 5 cases the agglutinin titer was doubled and 4 showed an increase of more than double.

A second series of 69 students were given oral vaccine, of these 35 had

TABLE III

Thirty-five Vaccinated Subcutaneously 6 Weeks to 10 Years Prior to Oral Vaccine

	0	1–5	1–10	1–20	1–40	1–80	1–160	1–320	1–640	1–1,280
Antigen O	28	2	3	1	1	0	0	0	0	0
Antigen H	15	1	7	4	4	0	1	0	0	3

TABLE IV

Test Made 4 to 6 Weeks After Oral Vaccine

	0	1–5	1–10	1–20	1–40	1–80	1–160	1–320	1–640	1–1,280
Antigen O	21	4	4	6	0	0	0	0	0	0
Antigen H	10	2	7	5	6	4	1	0	0	0

received vaccine subcutaneously 6 weeks to 10 years prior to the oral vaccine. Table III gives the distribution of the H and O agglutinins in this group before taking oral vaccine.

Table IV gives the distribution of H and O agglutinins in this group of 35 after oral vaccine. Six developed H agglutinins, 1 person having H agglutinins before taking typhoral had no agglutinins in the tests made after oral vaccine. Of the 20 who had H agglutinins before vaccination, 6 showed no increase; 7 showed a slight increase; 7 showed a decrease, and it is worth noting that 3 of these students had been vaccinated subcutaneously only 6 weeks prior to the oral vaccine. This probably represents the natural decrease observed after a lapse of time following subcutaneous vaccination and was not affected by the oral vaccine.

There were 34 students who had never been immunized. The distribution of H and O agglutinins prior to oral vaccine is given in Table V.

glutinins before immunization, 2 showed no rise in titer and 2 showed no O agglutinins after immunization.

Although the figures are not evident in Tables V and VI, 28 had no H or O agglutinins prior to oral vaccination. Of these 28, 17 did not develop agglutinins, 3 developed both H and O agglutinins, 7 developed H only, and 1 developed O only following oral vaccine.

Four persons received a second round of oral vaccine; 3 of these showed no agglutinins at any time. One showed H agglutinins in a titer of 1–10 before the second oral vaccine and 6 weeks later showed the same titer for H agglutinins but now had a titer of 1–20 of O agglutinins.

It will be seen from the above figures that only 24 per cent of the 121 persons who received oral vaccine developed H agglutinins. In this small group the agglutinins were rarely found in dilutions as high as 1–80. The percentage of these persons developing

TABLE V

Never Vaccinated. Tests Made Prior to Oral Vaccine

	0	*1–5*	*1–10*	*1–20*	*1–40*	*1–80*	*1–160*	*1–320*	*1–640*	*1–1,280*
Antigen O	30	1	2	1	0	0	0	0	0	0
Antigen H	32	1	0	0	0	0	1	0	0	0

TABLE VI

Never Vaccinated Prior to Oral Vaccine. Tests Made 4 to 5 Weeks After Oral Vaccine

	0	*1–5*	*1–10*	*1–20*	*1–40*	*1–80*	*1–160*	*1–320*	*1–640*	*1–1,280*
Antigen O	26	5	2	1	0	0	0	0	0	0
Antigen H	19	3	10	2	0	0	0	0	0	0

The results of tests made 4–5 weeks following the oral vaccine are given in Table VI.

Of the 32 who had no H agglutinins prior to oral vaccine, 4 developed both H and O agglutinins, 9 H only, and 2 O only; none giving titers above 1–40.

Of the 30 who had no O agglutinins before oral vaccine, 6 developed O agglutinins. Of the 4 who had O agglutinins was still smaller. In contrast to this, all of the persons who received vaccine subcutaneously developed H agglutinins the majority to final titers of 1–320 to 1–640. This is in agreement with many reports to be found in the literature.

DISCUSSION

The literature on agglutinin response

following the administration of oral typhoid vaccine is very conflicting. Hofstadt [1] reports that 75 per cent treated with oral vaccine gave agglutinin titers of 1–600. She did not test for O and H agglutinins. Dilutions of the patient's serum from 1–12.5 to 1–600 were used. The antigen was a 24 hour broth culture and incubation was at 37° C. for 18 hours. Pyper [2] using live cultures of *E. typhi* O_{901} and H_{901} for his agglutination test obtained the surprising titers of 1–3,000 after oral vaccination. Dennis and Berberian [6] found O and H agglutinins present in dilutions of 1–100 following oral vaccine, whereas after the subcutaneous method the titers ranged from 1–90 to 1–1,450, the titers for O being lower than those for H after subcutaneous vaccination and the reverse after oral vaccination.

On the other hand, Valentine,[3] Tuft,[4] and Achard [7] report no significant increase in agglutinins following oral vaccination. Their results are very similar to those reported here.

There seems to be an increasing number of statistical reports largely in the French literature dealing with the efficacy of oral vaccine in the prevention of typhoid fever. The generally favorable tone of these raises the question as to whether the agglutinin response following typhoid vaccination may be used as a criterion for the immunity of the patient to typhoid fever. It is well known that following an attack of the disease the immunity of the patient persists after the disappearance of the agglutinins. It is admittedly difficult to judge the immunity of a patient from the presence or absence of circulating antibodies. It would seem desirable, however, to try other means of measuring antibody response following oral vaccine and to withhold recommendation of the use of oral vaccine until some better method of measuring its efficiency has been devised.

CONCLUSIONS

The administration of typhoid vaccine by the oral method gave rise to the formation of H and O agglutinins in a small percentage of those vaccinated and only in low titer.

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Tapeworm Infestations in the Southern United States*

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THE widespread and justifiable publicity given to the nematode infestations in southern United States, such as the hookworm and round worm, has tended to obscure the fact that in these same states another class of worms, the cestodes, or tapeworms, is found in a sufficient number of cases to warrant interest in their study. Otto [5] has recently published a report on the incidence of the dwarf tapeworm (*Hymenolepis nana*) in southern United States based on data collected incidental to his ascaris studies, while Keller [6] has reported his findings of rat tapeworm (*Hymenolepis diminuta*) infestations in surveys made by himself and associates in several southern states.

In an endeavor to obtain additional and more complete data on the incidence of tapeworm infestations in the southern states, questionnaires were sent to 13 state board of health laboratories. Replies were received from 11. In order that our information might be as complete as possible and perhaps more representative of actual conditions, the figures available from recent surveys have also been included. As a result we have reports on 927,625 fecal examinations made in 13 southern states (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia), 1931 to 1935, inclusive. These data are summarized in Table I.

In the 927,625 fecal examinations on which this report is based, positive findings for all types of tapeworms total 8,085, making a mean incidence of 0.87 per cent. The incidence in the individual states ranges from 0.29 per cent in Florida to 2.97 per cent in Tennessee. When we endeavor to classify these positive findings as to types, we find available for study only 650,653 examinations (70 per cent) with 7,249 positive findings. In replies to our questionnaires we note such statements as: "We do not keep record in our annual reports of the types of intestinal parasites found"; and, "we do not keep detailed records of our tapeworm findings." Our own records in Georgia, especially of unusual tapeworm findings, have not been as complete as desirable. There is need on the part of the various state board of health laboratories for more careful and detailed recording and reporting of their intestinal parasite findings—especially tapeworm—if adequate and correct information as to prevalence is to be obtained.

* Read before the Laboratory Section of the American Public Health Association, at the sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

TABLE I

Human Tapeworm Infestations in the Southern United States, 1931–1935
(Based on Reports from State Laboratories and Special Surveys)

State		Total Exams.	Total Tapes	Per cent	H. nana	Per cent	T. Sag.	T. Sol.	H. Dim.	D. Latum	D. Can.
Ala.		282,844	2,935	1.03	2,895	1.02	24	..	6	..	..
Ark.	(A)	3,228	58	1.80	28	1.04	..	..	..	..	..
Fla.	(B)	274,607	792	0.29	1	0.10	..	..	..	..	..
Ga.	(C)	142,707	1,357	0.95	1,334	0.93	12	2	7	1	1
Ky.	(D)	38,388	1,114	2.90	1,095	2.85	8	..	11	..	..
La.	(E)	1,406	21	1.49	21	1.49	..	..	..	..	..
Miss.	(F)	82,867	448	0.54	441	0.53	3	4	..	..	..
N. C.	(G)	12,168	74	0.61	70	0.58	2	2	..	..	..
S. C.	(H)	34,476	230	0.67	229	0.66	1	..	..	..	..
Tenn.	(I)	30,146	895	2.97	885	2.94	3	..	7	..	..
Tex.	(J)	1,883	27	1.43	27	1.43	..	..	..	..	..
Va.		15,126	74	0.49	68	0.45	5	..	1	..	..
W. Va.	(K)	7,779	70	0.90	55	1.05	..	..	..	..	..
Total		927,625	8,085	0.87	7,149	1.10	58	8	32	1	1

(A) Includes 545 examinations with estimated 30 unclassified tapeworm findings by state laboratory, and 2,683 examinations with 28 positive *H. nana* findings (1.04%) made by Otto.[8]
(B) Includes 273,859 examinations with 791 unclassified tapeworm findings by state laboratories, and 748 examinations with one positive *H. nana* finding (0.1%) made by Otto.[8]
(C) Includes reports made by 3 city laboratories on 28,394 examinations with 44 positive *H. nana* and 2 positive *T. solium*.
(D) Includes survey of 36 counties (1934–1935) made by Keller and Leathers.[1] 23,964 examinations: *H. nana*—654 (2.7%); *H. diminuta*—11.
(E) Based on survey by Otto[9] in South Central Louisiana. 1,406 examinations: *H. nana*—21 (1.5%).
(F) Includes survey by Keller and Leathers.[2] 50,733 examinations; *H. nana*—200 (0.39%).
(G) For 1934 and 1935 only.
(H) Includes survey by Keller and Leathers.[3] 28,875 examinations; *H. nana*—187 (0.6%)
(I) Includes survey by Keller.[4] 25,192 examinations; *H. nana*—750 (2.9%) *H. diminuta*—7; "*Taenias*"—3.
(J) Based on Upton's[10] findings (1932–1933) in 5 east Texas counties. 1,883 examinations; *H. nana*—27 (1.4%).
(K) *H. nana* percentage based on 5,211 examinations with 55 positive *H. nana* (1.05%).

Of the 7,249 positive tapeworm findings 7,149, or 98.6 per cent were the dwarf tapeworm (*Hymenolepis nana*), an average incidence of 1.1 per cent for 13 southern states. The incidence ranges from 0.10 per cent in Florida to 2.94 per cent in Tennessee. In comparison, the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease[7] reported an average incidence of 1.8 per cent dwarf tapeworm infestation, based on 141,247 fecal examinations made during 1913 and 1914 in 11 southern states (Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, North and South Carolina, Tennessee, Texas, and Virginia).

The larger the number of examinations the more representative will be the results obtained. Because of the lack of available information it has been necessary for us to include dwarf tapeworm findings based on a comparatively small number of examinations—Florida 748, and Texas 1,883, whereas a larger number of examinations might have given different results. Some of our data include results obtained from surveys on selected groups such as school children, who generally show higher incidence of *H. nana* infestations than found in adults; and from rural areas where the incidence is usually higher than in urban areas. However, we believe that our results for the several southern states would approximate closely the incidence that might be anticipated from a state-wide survey.

The questions naturally arise as to

why the dwarf tapeworm findings in this study should comprise 98.6 per cent of all the tapeworm findings and why we should find such a low incidence (1.1 per cent). *Hymenolepis nana* is much more easily acquired than are the other tapeworm infestations. This parasite apparently does not require an intermediate host as do the other tapeworms, and human infestation is acquired "as a result of hand-to-mouth transmission of eggs that are in the infective stage when passed from the body." This "ease of acquirement" accounts for the high percentage of dwarf tapeworm findings as compared with the other types. On the other hand, as Keller [2] points out, the eggs of *Hymenolepis nana* have a thin shell, are fragile, and probably cannot resist external environmental conditions—a factor that probably limits the incidence. Also, Otto [5] states that "most human infection with *H. nana* is acquired probably either from transient or more probably from established human strains of the worm as a result of ingesting eggs from relatively fresh human feces" which would also be a factor in limiting the incidence.

Of the 7,249 positive findings, only 100 are for types other than *H. nana*. Among these are:

Taenia saginata (Beef tapeworm)	58
Taenia solium (Pork tapeworm)	8
Hymenolepis diminuta (Rat tapeworm)	32
Diphyllobothrium latum (Fish tapeworm)	1
Dipylidium caninum (Dog tapeworm)	1

There are several reasons for the small number of beef and pork tapeworm infestations reported. These worms require a suitable intermediate host (the pig for *T. solium* and cattle for *T. saginata*). Man usually acquires the parasite through the ingestion of raw or insufficiently cooked meat containing the cysticerci or larvae. Rigid government inspection of most of our beef and pork, thorough cooking, and proper refrigeration which probably kills the cysticerci, are no doubt important factors in limiting human infestations. In computing the incidence of the beef and pork tapeworms based on laboratory reports, we should hold in mind that, while either eggs or segments of the taenias may be found in the stools, most diagnoses are based on the findings of proglottids or segments. The average physician is probably more familiar with the appearance of these worms than with any other (the ascaris excluded). The majority of the positive taenia findings in our laboratory were the results of physicians sending or bringing specimens to us, either for confirmation of their own identification, or merely to acquaint us with the discovery. We believe that many physicians do not call upon the laboratory for aid in identifying the taenias. As a result, laboratory reports possibly show a lower incidence of human infestation than is actually the case.

Diagnosis of the other tapeworm infestations, such as the rat tapeworm, the fish tapeworm, or the dog tapeworm, is usually based on the laboratory findings. The rat tapeworm (*Hymenolepis diminuta*) is reported as having been found in 5 southern states (Alabama, Georgia, Kentucky, Tennessee, and Virginia) with a total of 32 cases. Keller [6] in 1931, reported 8 human infestations with this parasite, 7 found by him and 1 by Otto in surveys made in Tennessee. At that time he stated that "reports of about 100 cases are available." In recent surveys he and his associates found 11 cases in Kentucky.[1] We have found 20 cases since 1922.

These findings lead us to the conclusion that rat tapeworm infestations of humans are probably more numerous than believed. Most of our findings are encountered in the routine examination of fecal specimens submitted by health officers, and many

of the patients fail to show any symptoms, suggesting that many cases go undiscovered. While *Hymenolepis diminuta,* according to Chandler [8] is very common in rats and mice in all parts of the world, the fact that man is infected only under the grossest unsanitary conditions no doubt accounts for the comparatively low incidence of human infestation with the parasite. Direct infestation is not possible, as the parasite requires an intermediate host, the cystercercoid larva being found in the body cavity of a surprising range of meal infesting insects. Joyeux [9] regards the adult beetle, *Tenebrio molitor,* and the rat fleas, *Ceratophyllus fasciatus* and *Xenopsylla cheopsis,* as the natural intermediate hosts of *H. diminuta.* It is probable that most human infestations are due to the ingestion of improperly cooked breads, biscuits, and other foodstuffs made from flour or meal carrying the infected intermediate host. The conditions under which such an infestation can be acquired will be described in the report we are presenting of one of our rat tapeworm cases.

Findings of fish tapeworm infestations have been reported from time to time in this country, especially, according to Barron,[10] in the lake regions of northern Michigan and Minnesota. In the southern states they are rare and only 1 case is reported in this study. Two intermediate hosts and one definitive host are required for the completion of the life cycle of *D. latum,* man acquiring the infestation only through the ingestion of raw or insufficiently cooked fish containing the plerocercoid larva of the worm. Since the dietary habits of our natives do not include the consumption of raw fish, it is natural that infestation is found chiefly among the Jews who "taste the raw minced fish in the preparation of gefüllte fish" and among certain races, such as the Swedes and Finns, who eat freely of raw fish.

Human infestation with the dog tapeworm *(Dipylidium caninum)* is exceedingly rare in the United States and only 1 instance is reported in this study, found in our laboratory. This parasite requires an intermediate host which it finds in the dog louse—*Trichodectes canis,* in whose body cavity the onchosphere develops into the infective stage; or in the dog flea, *Ctenocephalus canis,* and the human flea, *Pulex irritans.* In the latter hosts, infection of the flea larvae occurs by ingestion of the dog tapeworm eggs which do not develop into the cystercercoid larvae until the flea larvae have reached the adult stage.

"Infection in man is entirely accidental and is evidently brought about through food contamination or through the practice of allowing dogs to lick the face at which time the flea is ingested. Infection in man, as well as in other definitive hosts, can only be acquired by swallowing the infected adult flea or louse. The eggs of this worm are seldom seen in the host's feces unless the proglottid becomes disintegrated or broken, and diagnosis is best made from segments passed with the host's feces." [11]

This was the method in the case which we are reporting.

SUMMARY

Nine hundred twenty-seven thousand six hundred twenty-five fecal examinations in 13 southern states from 1931–1935 inclusive, show 8,085 positive tapeworm findings of all types, a mean incidence of 0.87 per cent. Of the 7,249 positive findings which could be classified, 98.6 per cent were the dwarf tapeworm *(H. nana),* an average incidence of 1.1 per cent. Only 100 other types of tapeworms were found in this survey, of which 58 were beef tapeworm *(T. saginata);* 32 rat tapeworm *(H. diminuta);* 8 pork tapeworm *(T. solium)* and 1 each fish tapeworm *(D. latum)* and dog tapeworm *(D. caninum).*

Histories are given of cases of human infestation with the fish tapeworm, the rat tapeworm and the dog tapeworm.

Data regarding the prevalence of human infestations with tapeworm are incomplete due to the failure of a number of state board of health laboratories to classify their findings.

REPORT OF A HUMAN INFESTATION WITH THE FISH TAPEWORM

Our examination of a blood smear submitted for malaria was negative for malaria, but the blood picture showed the red cells varying considerably in size and shape, with numerous cells showing polychromatophilia and basophilic stippling. Nucleated red cells of both the normoblastic and megaloblastic type were present in such large numbers as to suggest a "blood crisis." The differential count showed 67 per cent polynuclears, 31 per cent lymphocytes and 2 per cent eosinophils. A severe secondary anemia was reported with a request for the case history and clinical symptoms.

Patient, a white male, age 45, native of Finland resident in this country for 18 years, living in a community of Finns in south Georgia. Has been farming for 15 years. Illness began about 5 weeks previous. Complained of weakness and a tired feeling; lost about 15 pounds. When first seen he had the appearance of a seriously ill man, yet up walking and going about his home with no complaint except the weakness and continued loss of weight. Marked cachexia and anemia. Hemoglobin, about 30 per cent, pulse—90; temperature—100°; blood pressure, 136/70. Other findings negative. The comment of the attending physician was "You will note from the above that the physical findings so far do not warrant a diagnosis. The man's general appearance though would indicate a malignancy or some condition of the blood stream which is upsetting the blood picture."

Two facts were considered suggestive: (1) the severe anemia found, and (2) the patient was a native of Finland. These suggested the possibility of a fish tapeworm infestation so a request was made for additional blood smears and a fecal specimen.

The blood smears showed essentially the same picture as reported, while the fecal specimen showed numerous ova of *D. latum*. One week later the patient was hospitalized. Blood gave 2,300,000 red cells; 8,900 white cells; hemoglobin, 35 per cent. He was treated with oleoresin of aspidium according to the method outlined by Magath and Brown.[13] Approximately 22.2 meters (74 feet) of fish tapeworm proglottids and 11 heads were recovered. Only one additional fecal specimen could be obtained following treatment and this was negative 2 weeks after treatment. The red cells still showed a fairly marked variation in size and shape with numerous megalocytes and an occasional megaloblast. The blood picture was now comparable to that found in pernicious anemia.

Further information secured from the patient and members of his community suggests the possibility of the infestation having been acquired prior to the patient's entry into this country. Studies to determine the possible presence in the community of other cases has not been attempted.

REPORT OF A HUMAN INFESTATION WITH THE RAT TAPEWORM

History (taken from the hospital charts):

White, female, age 28 months. Started passing worms (described by the Mother as "flatworms") June, 1935, ranging in size from 2 to 10 inches. The family lived in a house that had many rats and mice and rat feces often found in the flour. Mother sifted the flour and if feces was found the flour was discarded. However, the child ate biscuits made from this flour. They moved from this house in July, 1935. The child continued to pass segments for about 2 months accompanied by some fever, but no nausea or vomiting, no diarrhea or constipation. There was no more trouble until March, 1936, when the child again had fever and was given "Castoria" after which she passed 1 worm about 10 inches long. Fecal specimens submitted to the State Department of Health Laboratory were found positive for *Hymenolepis diminuta* on March 9 and April 6. Hospitalized on April 9. Blood at this time gave red cells 4,480,000; white cells 10,650; hemoglobin, 80 per cent. Dif-

ferential count polynuclears, 40 per cent; lymphocytes, 57 per cent; juveniles, 3 per cent. On April 11 the patient was treated by the method suggested by Magath and Brown,[13] using an emulsion of oleoresin of aspidium. All stools for 48 hours were collected in a weak formalin solution and sent to the State Department of Health Laboratory. There were found two pin worms, numerous *H. diminuta* ova and approximately 105 cm. (42 inches) of *H. diminuta* segments, the latter as individual proglottids and chains from 2 to 5 inches in length. Stool examinations on April 17, May 9, July 24, and September 25 were negative. Specimens from the Mother and Father examined April 6 were negative.

REPORT OF A HUMAN INFESTATION WITH THE DOG TAPEWORM

In view of the widespread distribution of the dog tapeworm *(Dipylidium caninum)* in dogs and cats, and the close relationship that frequently exists between these animals and children, it is somewhat puzzling that more cases of human infestation with this worm are not reported.

CASE HISTORY

The patient was a white male, age 4 years, a resident of Atlanta, Ga. He was carried to the family physician on account of a respiratory infection. The mother reported that during the past month she had noticed small white worms in the child's stools. The child was in good physical condition and had suffered only from an occasional "spell" with his stomach. Stool examinations failed to reveal any ova. Ten days later, several segments of worms were passed and were identified at the State Board of Health Laboratory as the dog tapeworm. Two days later the patient was treated with pelletierine tannate. Approximately 154 cm. (61 inches) of strobilia and 6 heads were recovered. Fourteen different chains were studied, varying in length from 3 to 23 cm. The largest had approximately 65 proglottids, with a maximum breadth of 2 mm. Subsequent to treatment 2 stool examinations were negative for ova and no segments have been found during 3 years.

This patient was the proud owner of a small puppy which had the usual flea population. The child played with the dog constantly, loved, petted, and handled it. Later the puppy had "running fits" and was left in the country, thus removing from the child's presence the dog, the fleas, and the tapeworm larvae.

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NOTE: The authors wish to express their appreciation to the directors of the various state laboratories who kindly furnished data regarding their examinations; to Drs. A. E. Keller, W. S. Leathers, and G. F. Otto for valuable assistance, and to Drs. M. Hines Roberts, Atlanta, Ga., T. G. Ritch, Jesup, Ga., and the Egleston Memorial Hospital, Atlanta, Ga., for case histories.

Influence of Dead Bacteria on Microscopic Counts of Pasteurized Milk

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WHEN one examines a stained smear of pasteurized milk under the microscope, bacteria which exhibit a variety of forms are frequently encountered. These may resemble the flora of raw milk or may be forms found rarely except in pasteurized milk.

There is a widely held belief that bacteria killed by pasteurization, remain visible and are counted, along with those remaining alive after the heating. This view is regarded as justification for restricting microscopic counts to raw milk.

HISTORICAL

The original publication by Breed dealing with direct microscopic counts of bacteria in milk, occurs in the *Centralbl. f. Bakteriol.*, II Abt. Bd. 30, 1911, pp. 337–340. Later publications on the subject by Breed and his associates occur in the following mentioned publications of the New York Agricultural Experiment Station, Geneva, N. Y.: *Tech. Bull. No. 49; Bull No. 439; Tech. Bull. No. 119; Bull. No. 566; Bull. No. 571; Tech. Bull. No. 156;* and *Tech. Bull. No. 191.* In these publications one may trace the development and gradual change in ideas about the problem of dead bacteria in connection with microscopic counts of pasteurized milk. The latest of the publications mentioned in the foregoing, on p. 20, contains this statement by Breed: "Bacteria in pasteurized milk that stain well in methylene blue are usually found to be alive."

In the publications mentioned, only one describes the appearance of dead bacteria and illustrates them. On this account it is reviewed here.

Robertson, Yale, and Breed [1] point out that there occur in samples of pasteurized milk, large, rod-shaped, spore-forming bacteria which do not form colonies on agar plates. The same organisms were found in milk stone, the material cooked on to pasteurizing equipment. Those writers at first thought that the organisms were thermophiles and made experiments planned to test this supposition, but the results did not reveal them. The writers conclude that the rod-shaped bacteria found in the pasteurized milk originated in the milk stone, and had been killed by pasteurization. Plate I in the bulletin under consideration, depicts spore-bearing thermophilic bacteria, but they were not recognized as such when the bulletin was published.

The conclusion that the bacteria were dead was erroneous, as shown by later work at the New York State Agricultural Experiment Station. Partly because of temperatures used in the experiments, and partly, perhaps, due to difficulty in growing the bacteria in agar, they had narrowly missed recognizing thermophiles. The bulletin had pointed out the important fact that bacteria occur in milk stone. It soon

became evident that they were thermophiles, and that milk stone is a common source of these organisms in pasteurized milk.

The bulletin in question is of particular interest because it represents a transition stage in the attitude of the workers at the New York State Agricultural Experiment Station toward the problem of bacteria in pasteurized milk. In the first publication on the microscopic method cited in the foregoing, a feeling of hopefulness about the value of microscopic counts of pasteurized milk is expressed. Later publications discuss the problem of whether certain organisms in pasteurized milk are dead, or bacteria that will not grow on agar. The doubt about the condition of the bacteria occasionally seen in pasteurized milk was again shown, when the method was included in *Standard Methods of Milk Analysis* of the American Public Health Association and limited to raw milk.

The reason for the doubt becomes more clear in the light of the information that some time after the first publication cited, workers generally encountered high microscopic counts in pasteurized milk. The true explanation of the presence of these bacteria had to be delayed until the occurrence of thermophiles in pasteurized milk was recognized.

Notwithstanding its title and conclusions, the bulletin being reviewed, marked the beginning of a series of reports on studies of thermophiles, which has been of outstanding value in making clear their peculiarities. In the later work the microscopic method was employed extensively in the study of the bacteriology of pasteurized milk.

Standard Methods, sixth edition, published in 1934, does not limit the use of the microscopic method to raw milk as in earlier editions. On page 28 it is recommended "as a means for detecting in pasteurized milk the presence of thermophilic and other types of bacteria that do not grow on standard agar plates." On page 36 the preparation and examination of microscopic specimens is again recommended for the detection of thermophilic bacteria. Here also, is reference to stainable bacteria as evidence of the necessity of remedial methods.

METHODS EMPLOYED

The problem was studied by making counts of raw milk, of the same after pasteurizing, and after holding for long periods at pasteurizing temperature. The method of laboratory pasteurization in test tubes was employed.

At the expiration of the several time intervals the tubes were removed and shaken before the smears were made. Counts were made from smears prepared with a loop delivering 1/100 c.c.

The senior author has unpublished data concerning counts from smears prepared from milk measured with a pipette and a loop. The results warrant the use of the latter, which permits more rapid work.

The slides were dipped in xylol and dried. Then, Newman-Lampert stain No. 2 was dropped on the smears. After the stain dried they were rinsed in water and dried, when they were ready for examination. Xylol was used to prevent the accumulation of fat in the double purpose stain when slides were dipped in it.

Counts were computed from the average number of single bacteria, rather than clumps, found in 100 fields, with a microscope adjusted to a factor of 600,000. When large numbers of thermophiles were encountered, a lesser number of fields were counted, in some cases, only 25 fields.

RESULTS

Microscopic counts of bacteria were made, in August, 1933, of 7 samples of raw milk, of the same after labora-

tory pasteurization at 142° to 143° F. for 30 minutes, and after holding at the same temperature for a total of 90 minutes. The counts are recorded in Table I in columns designated by the number of minutes that the milk was held. The percentages of reduction of the counts of the heated milk as compared with the original raw count are entered in columns at the right of those showing counts at the termination of the two heating periods.

TABLE I

Microscopic Counts and Percentage Reductions Before and After Holding Market Milk 30 and 90 Minutes. Temperature 142–143° F.

Sample No.	*Raw per c.c.**	*Held 30 Min. per c.c.**	*Per cent Red.*	*Held 90 Min. per c.c.**	*Per cent Red.*
1	2,300	420	81.7	18	99.2
2	2,600	600	76.9	30	98.8
3	5,100	1,100	78.4	270	94.7
4	1,400	120	91.4	24	98.2
5	2,700	260	90.4	72	97.3
6	4,200	120	97.1	150	96.4
7	3,800	440	88.4	36	99.0

* Expressed in thousands

It will be observed that pasteurization reduced the microscopic counts by percentages varying from 76.9 to 97.1. The counts from the same samples after holding for 90 minutes showed reductions that varied from 94.7 to 99.2 per cent, much higher percentages than observed after holding for 30 minutes, excepting only sample No. 6, which yielded inconsistent results.

In February, 1936, we conducted a similar experiment with raw milk used by another pasteurizing plant in Detroit. In this case, the heating was prolonged until the appearance of rod-shaped thermophilic bacteria was noted and their multiplication became apparent. This prolonged heating was carried out to gain information about the length of time of holding at pasteurizing temperature necessary to make thermophiles detectable under the microscope. Furthermore, the presence of thermophiles which are common in pasteurized milk, introduced evidence of importance in discussing the subject of dead bacteria in pasteurized milk.

Five raw milk samples taken from tank trucks were used, and the results appear in Table II. The letter T is used as an abbreviation for the expression: rod-shaped thermophilic bacteria, usually referred to as thermophiles. To economize space, observations on thermophiles are recorded in the column headed Per cent Red., but refer to the count in the column at the left. The abbreviation of Per cent Red. refers to percentage of reduction as compared with the count of the raw milk.

Counts were limited to 100 fields, and in a number of cases no bacteria were found in this number of fields, in several samples of milk after heating from 1.5 to 2 hours. In the smears that contained considerable numbers of thermophiles, less than 100 fields were counted, the number of fields counted being determined by the number of thermophiles.

In cases where significant figures were obtained for counts at the 30 minute and 1 hour periods, the per cent reduction was uniformly higher at the end of the latter period. These results confirm those recorded in Table I.

Several inconsistencies in counts result from limiting the search for bacteria to 100 fields, and from the presence of clumps of bacteria.

TABLE II

Microscopic Counts Before and After Holding Market Milk for Intervals up to 5 Hours. Temperature 142–143° F.

Hrs. Held	Sample 1 Count per c.c.*	Per cent Red.	Sample 2 Count per c.c.*	Per cent Red.	Sample 3 Count per c.c.*	Per Cent Red.	Sample 4 Count per c.c.*	Per cent Red.	Sample 5 Count per c.c.*	Per cent Red.
(Raw)	1,800	....	12	...	650	...	1,200	....	4,000	....
½	24	98.6	0†	100	670‡	0	70	94.1	150	96.2
1	0†	100.0	0†	...	0†	100	12	99.0	12	99.7
1½	36	98.0	0†	...	0†	...	6	99.5	0†	....
2	0†	....	0†	...	0†	...	36	97.0	60	⅓ T
3	1 cl.	T	0†	...	60	No T	70	No T	12	No T
4	800	T	150	T	180	No T	890	T	580	T
5	5,500	T	7,500	T	6,000	T	7,000	T	9,000	T

* = Expressed in thousands
† = No bacteria found in 100 fields
‡ = Caused by one clump

It will be seen that after the 30 minute period, the several samples yielded minimum or no counts until thermophiles began to appear.

Thermophiles appeared after 2 hours' holding of sample 5, but in such limited numbers that they were missed in the count at 3 hours. In sample 1, one clump of thermophiles was found after 3 hours. Only after holding for 4 hours, were thermophiles consistently present in all samples. After 5 hours the rapid increase of thermophiles was evident.

These counts were made with a minimum number of fields counted and demonstrate that the bacteria increased in numbers and therefore were not dead.

In February, 1936, counts were again made from raw milk and of the same milk after holding for various periods. The samples represented raw milk used by three milk plants.

In the case of the previous experiments the samples had been collected in ½ pint bottles, machine-washed in the plant, and kept in ice water. In this experiment a more refined technic was used. The samples were taken in sterile Erlenmeyer flasks of 250 c.c. capacity. The milk was either drawn into them directly from a valve or was added with a sterile pipette. The flasks

TABLE III

Microscopic Counts Made from Market Milk Before and After Holding for Intervals up to 7 Hours. Temperature 142–143° F.

Hrs. Held	Sample 1 Count per c.c.*	Per cent Red.	Sample 2 Count per c.c.*	Per cent Red.	Sample 3 Count per c.c.*	Per cent Red.
(Raw)	1,400	....	30	...	540	....
½	900	35.7	0†	100	42	92.2
1	18	98.7	0†	...	12	97.7
2	64	....	12	...	0†	....
3	0†	....	0†	...	780	T
4	100	Part T	0†	...	8,300	T
5	3,200	T	12	T	....	....
6	9,200	T	440	T	....	....
7	12,000	T	7,300	T	....	....

* = Expressed in thousands
† = No bacteria found in 200 fields

were placed in a water bath for pasteurizing the milk and holding for longer periods. Results appear in Table III.

Pasteurizing in flasks proved to be more inconvenient than test tubes because of the problem of keeping the flasks immersed. There is nothing in the results to indicate the necessity for using the technic employed.

In two instances where significant figures for percentage of reduction are available, holding for 1 hour eliminated more bacteria than the 30 minute holding period.

Thermophiles appeared in sample 1 after 4 hours' holding, in sample 2, after 5 hours, and in sample 3 after 3 hours. Smears of sample 3, after 4 hours' holding, showed very high counts of thermophiles. Here again the counts were made from as few as 25 fields and no high degree of accuracy of counting was attempted.

On December 26, 1935, an experiment was conducted to demonstrate the gradual disappearance of bacteria heated during the pasteurizing process and longer. To provide high count milk for the work, a small amount of cream was added to high grade pasteurized milk with the low microscopic count of 12,000. The pasteurized cream employed had originally shown no bacteria in 100 fields but bacteria had grown in it while standing at 40° to 50° F. in a refrigerator until it showed a very high count.

The material was pasteurized in the laboratory at a temperature kept most of the time at 143° but with fluctuations between 142° and 144° F. Smears for counts were made of the milk before heating, when the temperature reached 143° F. and at intervals of 5 minutes for a total of 90 minutes.

The results for the first 45 minutes are given in Table IV.

Columns are provided to show the period of heating, reckoned from the time the milk reached 143° F., the number of fields counted, the microscopic counts, and the per cent of reduction of the count as compared with the count of the raw milk.

It should be noted that the warming period before pasteurization was regarded as commenced, consumed 7 minutes and caused a 40 per cent reduction in count. The count after a 5 minute interval is the only one that does not reveal a consistent gradual reduction in count during the first 45 minutes of heating. Thirty minutes

TABLE IV

Microscopic Counts from Inoculated Market Milk at 5 Minute Intervals During Holding for 45 Minutes. Temperature 142–144° F.

Min. Held	*Fields Counted*	*Microscopic Count * per c.c.*	*Per cent Red.*
Raw	25	30,000	..
143°	25	18,000	40
5	25	20,000	33
10	25	16,000	46
15	25	15,000	50
20	25	10,000	66
25	25	7,100	76
30	25	3,900	87
35	100	1,400	95
40	100	1,300	95
45	100	590	98

* = Expressed in thousands

brought about a reduction of 87 per cent. On further heating the destruction was consistently greater up to 45 minutes, when the percentage of reduction was 98. Following the 45 minute period, the figures displayed minor inconsistencies with fluctuations in percentage of reduction between 95 and 99 per cent.

Toward the end of the 30 minute period, and especially noticeable after this, were poorly stained cells, which were regarded as dead and were not counted.

The percentages of reduction after heating for 30 and 90 minutes were similar to those shown in Table I.

SUMMARY AND DISCUSSION

Heating milk at pasteurizing temperature for 30 minutes caused a considerable reduction in the number of bacteria found in smears stained with methylene blue. In many cases the percentage of reduction in count would appear to be comparable to similar figures obtained from plate counts. In general, the reduction after 30 minutes range from 75 per cent upward, with 9 of the 16 samples showing above 90 per cent reduction.

Most of the bacteria found after the 30 minute heating disappeared after the longer heating. It would seem that they were merely live organisms that had survived ordinary pasteurization, a group of bacteria that is well recognized as a factor affecting efficiency of pasteurization. The longer periods of heating at 60 and 90 minutes, in the several tests, produced percentages of reduction in most cases above 95 per cent.

It is evident that pasteurization not merely kills most of the bacteria commonly present in large numbers in raw milk, but renders them invisible when stained with methylene blue, if indeed it does not disintegrate them. The extent to which bacteria totally disappear under the influence of heat is the striking circumstance encountered in making microscopic counts of pasteurized milk, as attested by the figures for percentage of reduction in the foregoing tables. In our routine work in making counts of pasteurized milk clumps of organisms or chains of streptococci that apparently illustrate the effect of heat are only occasionally encountered. A few well stained cells appear, accompanied by others faintly stained and others distinguishable but not stained. The poorly stained cells were especially noticeable in our last experiment. Making such counts does not necessitate frequent decisions about the thoroughness of staining. The comparatively rare instances where damage is made evident by poorly stained cells are regarded as demonstration of that process rather than evidence of serious disturbance of the accuracy of the count.

The practice of regarding well stained cells as live ones, as recommended by Breed, seems sufficiently accurate for the purpose of using microscopic counts in quality control work.

As shown by the results just presented, the idea that the direct microscopic method could not be used in counting bacteria in pasteurized milk, can hardly have been based on nonthermophilic bacteria which survive and were stained after pasteurization. This belief is supported by an experience of over 4 years in which microscopic counts have been used as a basis for controlling the quality of pasteurized milk.

On the other hand, thermophiles could readily have given rise to such an idea. In the early days of the study of these rod-shaped bacteria, when they were not recognized as thermophiles, a failure to cultivate them would suggest the conclusion that they were dead. This we believe is the explanation for the prevalence of the idea that dead

bacteria seriously interfere with microscopic counts made on pasteurized milk.

Since thermophiles constitute a problem of major importance in producing pasteurized milk of low bacterial content, microscopic counts are essential for effective control work. Their use avoids the two problems associated with standard plate counts, which are the subject of discussion at present. These are: How to provide a suitable incubator temperature and a culture medium for growing the bacteria, and revealing the facts about the bacterial content of milk.

CONCLUSION

Our results justify the belief that insufficient numbers of dead bacteria remain visible after pasteurization to impair the usefulness of direct microscopic counts made on pasteurized milk.

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Insulin Treatment of Mental Disease Introduced in State Hospitals

THE insulin treatment of dementia praecox, discovered by the young Viennese physician, Manfred Sakel, is now in use in state mental hospitals throughout New York and also in some other states.

Only recently emerged from the experimental stage, this treatment has already benefitted a considerable number of cases previously considered hopeless. It consists essentially in the production of a series of daily shocks with gradual increasing doses of insulin. The insulin after being injected into the patient exhausts the sugar content of the body and produces a state of somnolence or coma, and in some cases, convulsions. After passing into a coma, the patient is revived by the feeding or injection of a glucose solution.

* * *

Dementia praecox is the most prevalent form of mental disease. In New York alone there are over 36,000 cases of dementia praecox in the state mental hospitals. Offering, as it does, hope of the return of many of these men and women to normal social life with a vast saving to the state, the insulin shock treatment holds dramatic possibilities.—*Health News*, Albany, N. Y., June 28, 1937.

A Venereal Disease Program for State or Full-Time Health Departments*

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THE success of a venereal disease control program depends upon certain fundamental factors which are enumerated in the order of their importance: (1) adequate funds, (2) experienced personnel, and (3) reliable information concerning the extent of the problem.

With these 3 factors present we may discuss seriously a venereal disease control program. When they are not present, or cannot be provided, it is a waste of time and breath even to mention such a program.

I have placed "adequate funds" as the first factor because funds must be available to employ experienced personnel, and without experienced personnel to collect information there can be no reliable data.

Whether it is a venereal disease program or a house we are building there is always that very important underlying principle that the measure of success depends upon trained workers and organization. Let us assume funds are available, trained personnel is at hand. The first step is to get some reliable information. We want facts, not impressions or anyone's guesses.

(A) CENTRAL OFFICE

Let us start our investigations in the central office.

1. What are the rules and regulations of the state board of health concerning V. D. control measures?
2. Is there a special division for V. D.?
3. Is there a full-time experienced V. D. control officer in charge?
4. What appropriations were made for the V. D. division last year?

(B) NOTIFICATION

1. How many cases of syphilis were reported by physicians last year? How many cases of gonorrhea?
2. What type of reports are made? Does the physician simply report a case of syphilis or gonorrhea, does he follow some standard of classification, or does the law require only the reporting of communicable cases?
3. What per cent of physicians report V. D. cases?

(C) FREE CLINICS

1. What free clinics are available for the treatment of indigents?
2. Where are these clinics located?
3. Are these clinics supported by state, city, or private funds?
4. Personnel of clinics—
   Well organized and staffed?
   Poorly organized and staffed?
5. Records—Investigate how kept—
   Good?
   Poor?
6. Type of service—
   Good?
   Poor?
7. "Follow-up" System—
   How performed—nurses, social workers or police?
   Results of follow-up service?
8. Is consultation service available?
9. Hospital facilities—
   Adequate?

* Read before the Western Branch, American Public Health Association, at the Eighth Annual Meeting in Phoenix, Ariz., April 13, 1937.

Inadequate?

10. How many cases of syphilis were treated in hospitals last year?

11. How many of these cases were early syphilis?

12. What is the average amount of treatment the early cases actually received?

Number of doses of arsphenamine?

Number of doses of heavy metal?

13. What per cent of these cases discontinued treatment before they had received 20 doses of arsphenamine and 20 doses of heavy metal?

14. How long does the average case of gonorrhea remain under treatment?

(D) LABORATORY SERVICE

1. Is free laboratory service for serological tests available to private physicians?

2. How many examinations were made in last year for syphilis? For gonorrhea?

3. What per cent of examinations are reported as positive for syphilis? For gonorrhea?

4. Is it possible to tell from the laboratory records how many of the specimens sent in for examination are for diagnosis and how many for treatment control?

5. What type test is used and how reliable are the laboratory reports?

6. Does laboratory check their results with other laboratories to detect possible laboratory errors?

7. What appropriations are made to laboratory?

8. Are darkfield services available? How obtained and method used?

(E) DISTRIBUTION OF DRUGS

1. Does the state board of health offer free drugs for treatment of the indigents?

For all cases?

2. How are these drugs distributed? Through druggists or by mail from central office?

3. What drugs are distributed?

Arsphenamine?

Neoarsphenamine?

Tryparsamide?

4. Number of doses of each drug distributed in last year?

5. Cost of drugs?

6. Cost of distribution?

(F) HOSPITAL FACILITIES

1. What facilities are available in hospitals and lying-in institutions for routine serological service?

2. What facilities are available for the same service in prenatal clinics?

3. Do hospitals accept V. D. cases?

4. Is a routine serological examination mandatory on all patients?

5. Is treatment instituted at hospital?

6. What provisions are made for patient after patient leaves hospital?

7. What about investigation to uncover sources of infection and exposures?

8. Has hospital an out-patient department?

9. If so, what fees are charged?

(G) PROSTITUTION

1. What police measures are attempted to control prostitution?

2. Are there laws regulating such houses? How well enforced?

3. Are all suspected prostitutes examined for venereal disease?

Before conviction?

After conviction?

4. If found infected, are such women required to take treatment?

5. What control has the health officer over such cases?

Quarantine measures?

6. If patient is sent to prison or reformatory are treatment measures provided?

7. Is there a parole system?

8. Are hospital facilities available for infected prostitutes? If so, where?

(H) INDUSTRY

1. What efforts have been made to control syphilis and gonorrhea in industry?

2. Is a physical examination necessary before applicant for employment is accepted?

3. If found to be infected, is the applicant rejected?

4. If employee is found to be infected is he discharged?

5. Is treatment furnished by industry or is patient sent to private physician or clinic?

6. What educational measures have been used in industry?

7. Are the industrialists interested and will they coöperate?

(I) EDUCATIONAL MEASURES

1. What educational measures have been used?

2. In schools?

3. For civic organizations?

4. Social hygiene?

5. Lectures?

6. Movies?

7. Posters?

8. Pamphlets?
9. Placards?

(J) PROPHYLACTICS

1. Is the sale of prophylactics prohibited?
2. Where sold?
   Drug stores?
   Filling stations?
   Cigar stores?
3. Is there a special license necessary to sell or display such articles?
4. Is any attempt made to protect the public from purchasing an inferior grade of these products? Are there certain standards demanded?
5. Are there any laws or regulations prohibiting the advertisement of such prophylactics?
6. Do physicians and clinicians instruct their patients in the proper use of prophylactics?

(K) GENERAL

1. What is the attitude of the medical profession toward a proposed V. D. control program?
2. What coöperation may be expected from the clinics and hospitals?
3. What coöperation may be expected from the lay groups?

Now, these are questions that must be answered before we can think in terms of planning a V. D. control program.

How can this information be obtained? (1) By a questionnaire, (2) personal investigation, or (3) by records? On these we must depend and on these only.

Someone will say, "We cannot get adequate funds. We have no trained personnel and have no reliable data." To that I can only reply, "Use whatever funds you have to train personnel, then use the personnel to collect reliable data; then build your organization."

One reason we cannot get adequate funds is because we have no reliable information nor sufficent trained help to get it. And the longer we wait or the more we temporize or accept makeshift and temporary programs, the further we will be from our goal.

On several occasions I have been invited into a state to discuss a V. D. program with the health officer. Sometimes, before I could get my bags unpacked at the hotel a committee would call upon me to outline the program. They might just as well ask me to be a magician and pull a rabbit or two out of my hat, or make a bowl of goldfish disappear through the floor.

It is obvious that no one can plan a program of any kind unless he knows exactly what material he is expected to use. Anyone can outline a program or suggest one, but a paper program will not control these diseases.

How easy it is to say "Control prostitution." But no one has succeeded. It is just as easy to say, "Get the carrier"—perfectly simple until you try it yourself.

Another simple statement is "Keep the communicable cases under treatment." That's good advice, yet only a small percentage of physicians and clinicians have been able to accomplish this. You as practical health officers know these difficulties, yet progress is being made and will be made if we keep the 3 fundamental principles in mind —adequate funds, trained personnel, and reliable information.

School Nursing in a Generalized Nursing Program*

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IN presenting this subject an effort has been made to include the advantages and disadvantages experienced in administering school nursing in a generalized public health nursing program. Twenty-one questionnaires were sent to official public health nursing agencies of the larger cities. Nine replies were received, 7 of which stated that they did include school nursing in such general programs as they offer, but only 2 include all the services of a complete health program, while 2 have no generalized program of any kind. Of the 7 departments doing school nursing, 5 included public and parochial schools, and 2 included parochial schools only.

The replies stating the advantages of generalized nursing sound almost stereotyped because there is such general agreement. Summarized they read:

First—More information regarding the individual child, the family, and the district is available for use by the teacher, and by the nurse.

Second—Duplication is eliminated in the home and elsewhere, and wiser teaching results because it is done by one nurse rather than by several.

Third—Effort, carfare, and time are saved by the reduction of travel. One director states as an additional advantage the continuous access which the school principal has to the district supervisor in the health center.

In the Detroit Health Department, school nursing exists as a specialized nursing service in certain sections which represent 35 per cent of the city population and 46 per cent of the staff. The generalized nursing program includes 65 per cent of the population and 54 per cent of the staff. This dual situation exists because the city does not have available buildings for taking over a generalized service in the areas not yet covered. Generalized nursing in Detroit includes every possible health service excepting daily bedside care of patients.

ADVANTAGES

Local experience has shown the following definite advantages of a generalized nursing service:

1. An appreciation by the nurse that the child's health and welfare must be considered in the light of the entire family situation. His importance in the family is relative and his personal hygiene and behavior depend largely upon the home situation. If the family income is limited, relative importance must determine what physical defect or health condition in the family shall receive first attention.

2. The prevention of communicable diseases demands that parents be taught not to expose the community by send-

* Read at a Joint Session of the American Association of School Physicians and the Public Health Nursing Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

ing into it members of the family who have symptoms of communicable disease. The success of a public health nurse is not measured by the number of individuals she sends home because of symptoms but by the number of individuals whose communicable disease is discovered before they leave home. Adequate morning inspection at home by the parent will keep communicable diseases out of the school. A study was made of all communicable diseases found by nurses in the school and in the home during March, April, May, and June, 1936. Specialized nurses found 56.6 per cent of the communicable diseases in their area in the home and 43.4 per cent in the school, whereas the generalized nurse found 65.5 per cent in the home and 34.5 per cent in the school.

3. A maximum of community health requires consideration of the child's health and welfare before he enters school. Immunization and the correction of physical defects are matters that should be attended to in the home before the child enters school. As an example, in September 1935,* 67 per cent of all entrants to school had already received their immunization treatments against diphtheria.

4. The school experience of the child with problems may be less difficult after the nurse informs the interested teacher about his whole family situation.

5. The success of a public health nurse is not measured by the number of children she treats in the school clinic but by the number who come to school with clean cloths or dressings put on by mothers who have learned to take on their own responsibility for minor injuries or by physicians from whom they have sought care. The elimination of treatment clinics, except for emergencies which are used for teaching, releases more of the nurse's time for family work.

6. It is easier under the generalized plan for the nurse not to serve as a truant officer.

7. The visit to the school by the parent can be utilized for discussing other family problems, and every visit by the nurse to the home can be used to reinforce the health teaching in behalf of the school child.

8. The child missed in the family visit can be seen in the school.

9. The mother knows that if she needs her nurse she can find her in the school, or she can send a message by the school child.

10. Communicable disease is better controlled. The school nurse, because she is also the communicable disease nurse, knows of the new cases of communicable disease in the school sooner than if she had to wait for reports, as the specialized nurse does. The generalized nurse also knows of the other cases of communicable disease in the district as well as the school children. She can be on the alert for symptoms and see that her teachers are also. During the 1935–1936 school year nurses in the specialized district discovered 31 per cent of the total cases of major communicable diseases among school children. In the generalized districts nurses discovered 37 per cent of the total cases of major communicable diseases among school children, an increase of 6 per cent.

11. In some families, foreign especially, the nurse who comes from the school can be more easily understood and accepted. This is an aid to all the family's problems.

12. The special health facilities of the school system, such as open air rooms, can be used much more intelligently by the nurse who knows the entire family health history of the pupils including cases of tuberculosis

* 1935 figures are given because those of 1936 are not yet available.

and convalescence from acute communicable diseases or other special health problems.

13. The generalized nurse can often eliminate unnecessary absentee calls, because of her knowledge of the families. Instead of taking time to visit the home where she knows the mother always gives her children the necessary care and calls the physician early, she can make the visit where the children are more likely to be neglected.

14. The generalized nurse is better prepared to care for emergencies in the home, some of which would have to wait until another specialized nurse in the particular field could make the call.

15. More nurses become familiar with school work, and when a special occasion arises they can be called upon for school work. For the last few years, such a very special occasion has been the first 2 school days in September when a minimum of activities other than school work has been carried out. This releases more nurses to meet personally every new pupil and the parent who accompanies him to school. The child's physical condition is the subject of this interview. Medical examinations are not made by the Health Department until the second month of school. By calling upon all nurses in the department who know school work, it was possible last year to double the usual staff for these 2 days. This additional help made over 5,500 home visits unnecessary. At $.77 per visit this meant a saving of $4,300.

16. With the protection of the health of the school child considered as one of the tenets of the National Education Association, the teaching of health by integration with other subjects becomes the teacher's task. This makes class teaching by nurses in the grades less and less necessary and thus reduces even more the time profitably spent in school. By the same token, the daily morning inspection and even the yearly inspection of children become matters of great importance and even personal concern to the conscientious teacher further releasing the nurse and increasing her opportunity to teach the mothers in the home.

17. A great advantage is found in the increased amount of work done. In a study of home visits made in 1934–1935 the specialized nurses were 1.4 per cent short of their quota according to their enrollment. The generalized nurses' home visits were 1.4 per cent higher than the standard for their enrollment—actually an increase of over 4,000 visits. While the specialized nurses had more teacher-nurse conferences, the generalized nurses had more teacher-parent-nurse conferences and nurse-social worker conferences. The specialized nurses had more group conferences with mothers but the generalized nurses reached 3.8 times as many individuals in their extra home visits.

The nurse is not responsible for determining when a correction is a correction but she is responsible for seeing that children obtain the services of their family physicians. One way of measuring results is to compare the number of children in the generalized and specialized districts who were actually taken to physicians by their parents for physical examinations, and from whose physicians reports of the examinations were returned to the school. Where nursing was generalized, physicians' reports were returned for 31.9 per cent of the school children, where specialized, 32.8 per cent. Although the generalized is 0.9 per cent less efficient in this regard, this is not cause for disappointment because it can be readily understood.

The economic conditions are poorest in the generalized districts and they contain the greatest number of foreigners, who are largely Polish. Forty-five per cent of the school children are

estimated to belong to indigent families. This is a matter of importance because there are virtually no free clinics in Detroit where a health examination will be given to an indigent school child. During the time covered by the study, there were practically no facilities available to indigents for the correction of dental defects, but there were facilities for the correction of visual defects. Although the generalized area includes 64 per cent of the school population only 47 per cent of the total dental corrections were obtained through the efforts of generalized nurses, whereas the visual corrections rose to 70 per cent.

The 4 months' study shows that the generalized districts which had 64 per cent of the total school population obtained 64 per cent of the total corrections of physical defects and 65 per cent of the pupils who reached the private physician were sent by generalized nurses.

DISADVANTAGES

The following disadvantages were given by the 4 departments answering:

1. It was not possible to report each morning at the sub-station.
2. An inadequate number of nurses is more keenly felt under a generalized program.
3. Better prepared, more intelligent nurses are necessary for generalized service, and they are not always available.
4. There is an occasional conflict between the school schedule and urgent field work.
5. "The attitude sometimes encountered among the school principals is that the school nurse should spend all of her time in the school building while school is in session."

It is questionable whether an acknowledged inadequate number of nurses, or a staff of poorly qualified nurses should be condoned under either system. Nurses are expected to advise and to stimulate teachers in regard to their health program—they must necessarily be their equals in education and cultural background under either type of nursing organization. The system that would show up an inadequate quantity or quality of nursing service should be adopted for that very reason, and as such should be classified under the "advantages" column.

The above criticism of the school principals occurs also in the Detroit situation, and it is the result of insufficient effort on the part of the health departments to acquaint the school personnel with the larger community problems, for which both the school and the health department have a responsibility.

That there is occasional conflict between the school schedule and urgent field work is true, but so likewise are there conflicts under any specialized service. As examples, assistance in the baby clinic at the same time that a formula has to be demonstrated, assistance in the tuberculosis clinic the same morning a patient must be prepared to go to the hospital, 2 scarlet fever calls of equal importance, or in the schools, 2 teachers who want their visits made "first thing in the morning." An emergency nurse should be provided for such occasional conflicts regardless of which type of nursing service is functioning. No system can be planned which eliminates all conflicting responsibilities.

There seems to be but one well justified criticism offered—the need for specialized supervision—but why this should be considered a disadvantage is not clear unless it be considered a budget difficulty. Health Departments usually include or try to include in their personnel medical specialists to head up the several divisions, each of which serves the whole city. The corresponding divisions of nursing service need

just as careful handling. Not only is the work of the individual nurse of importance to the specialized supervisor but the needs of the community are as well. It must be someone's responsibility to see each activity city-wide in its application. As long as the conclusions reached by the specialists are eventually tied up in one well balanced health program, they are an advantage in any department.

The principles and policies underlying any program have much to do with its success. Modern health conceptions include the following:

1. The family as a unit is more important than any of its members. Isolated individuals cannot be handled adequately.
2. Prophylactic work brings best and most economical results when applied to the infant and preschool child.
3. The physician-family relationship must be protected and promoted for the best interests of the family and of the health movement.
4. The teacher is an important factor in the promotion of child health and community health.

These health principles are promoted best where the family as a unit, in the light of all its health needs, is the core of the system and this means generalized, one-nurse-per-family health work.

But perhaps of greater importance than the type of system under which the nurse functions is the kind of nurse and the quality of her work. Once an organization has defined its objectives, the health commissioner must know whether his nursing staff is prepared to carry them out. Neither the new nurse nor the nurse longer in service who has not learned the contents of the approved certificate course in public health nursing and had properly supervised experience is adequately prepared. We only deceive ourselves when we do not face these disagreeable facts. An unprepared nurse can bring to naught either system, but she can do the greatest harm in the generalized field because it offers at all times the maximum of opportunities for community service.

Consumer Contracts Undulant Fever, Milk Dealer Held Liable

IN a decision profoundly affecting the milk industry, Superior Judge James T. Lawler of Seattle, Washington, ruled that milk distributors and milk producers are liable for the purity of their products. Judge Lawler's decision on April 26 awarded Ralph Dean $1,946.50 damages for contracting undulant fever. Both the milk company distributing the milk and the farmer on whose farm the milk was produced were defendants in the case. Mr. Dean charged that he contracted the fever from drinking raw milk.—*The Milk Dealer* (*Health News*, Albany, N. Y., June 28, 1937).

Influence of Contaminating Bacteria on the Results of the Microscopic Test for Streptococcic Mastitis*

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THE microscopic examination of properly collected and handled milk samples is an accurate means of diagnosing streptococcic mastitis in dairy cows. Details of the microscopic test have been presented elsewhere.[1] As the territory from which milk samples were received became larger, the time required for transportation became longer. This presented a problem of spoilage due to bacteria in the milk other than streptococci. Brilliant green in final dilution of 1–50,000 in the milk was found to preserve the samples for weeks if reasonable precautions had been taken in collecting them.[2] The samples are incubated at 37° C. for at least 12 hours during which time the streptococci multiply and are more easily detected by microscopic examination. It is evident that contaminating bacteria get into the milk as a result of improper technic in collecting the samples, or may be present in the udder and reproduce during the period of incubation. As a result they may be present in such large number as to obscure the streptococci when present in small numbers. Metabolic products of the contaminating bacteria may inhibit the growth of the streptococci.

This study was undertaken to determine the effect of such contaminating bacteria on the efficiency of the microscopic test for detecting streptococcic mastitis, and to determine the effect of temperature and time of holding samples at different temperatures prior to incubation.

METHODS

Milk naturally infected with streptococci was inoculated with increasing amounts of the organisms found to contaminate milk samples most frequently, which included strains of *Escherichia coli, Staphylococcus aureus, Bacillus subtilis, Brucella abortus,* and an udder micrococcus. These tubes together with a control (no contaminating bacteria) were incubated at 37° C. for 12 hours. A similar series was prepared, and 0.1 c.c. of a 1–500 sterile aqueous solution of brilliant green was added to each tube of milk (10 c.c.) giving 1–50,000 final dilution. The tubes were incubated at 37° C. for 12 hours, after which Breed's smears were prepared of all tubes and examined microscopically. The presence of streptococci and the number of chains and the approximate number of contaminat-

* *Journal Article No. 282,* new series of the Michigan Agricultural Experiment Station.

ing bacteria per microscopic field were recorded. Three additional sets of tubes of streptococcus infected milk were contaminated with *Esch. coli;* one set was immediately incubated for 12 hours at 37° C., a second was held at ice box (7° C.) temperature for 48 hours prior to incubation, while the third was held at room temperature (24° C.) for 48 hours prior to incubation at 37° C. for 12 hours. Brilliant green in final dilution of 1–50,000 was added to 3 similar sets of tubes of streptococcus infected milk; these were subjected to the same temperatures and conditions as the series with no dye. Microscopic findings were recorded.

RESULTS AND DISCUSSION

The conditions of this study were varied to simulate procedures followed in laboratories making routine microscopic tests of milk samples for streptococcic mastitis. The organisms contaminating milk samples most frequently were employed. These get into the milk samples through faulty technic in collection, such as: failure to wipe the udder with a moist cloth, failure to discard the first stream of milk from each quarter, failure to milk directly in sterile tubes, as well as contamination of the cork while collecting the sample. *Br. abortus* and *Staph. aureus* may invade the udder and be eliminated in the milk. They may overshadow the microscopic field and decrease the possibility of finding the streptococci, especially when few are present.

To determine the influence of the contaminating bacteria on the accuracy of the microscopic test, 10 c.c. amounts of milk naturally infected were inoculated with increasing amounts of broth culture of the contaminating organisms. These tubes with a control were incubated at 37° C. for 12 hours. The results are presented in Table I. The *Esch. coli, Staph. aureus,* and *B. subtilis* reproduced rapidly. Coincident with the increase of these bacteria there

TABLE I

The Microscopic Examination of Natural Streptococcus Infected Milk with No Dye and with 1–50,000 Brilliant Green to Which Varying Amounts of Contaminating Bacteria were Added and Then Incubated at 37° C. for 12 Hours

Amount of Contaminating Bacteria Added to 10 c.c. of Strep. Infected Milk c.c.	E. Coli	Strep.	S. aureus	Strep.	Br. abortus	Strep.	B. subtilis	Strep.	Micrococcus	Strep.
	Microscopic Examination of Milk Samples (No Brilliant Green)									
none	..	35*	..	28	..	30	..	35	..	33
0.1	m†	3	m	28	l	32	m	20	l	33
0.2	m	3	m	30	l	30	m	10	l	34
0.3	h	1	h	25	m	26	m	12	l	34
0.4	h	1	h	20	m	24	m	12	l	32
0.5	h	2	h	15	m	26	h	10	l	32
	Microscopic Examination of Milk Samples (1–50,000 Final Dilution of Brilliant Green)									
none	..	40	..	44	..	38	..	45	..	45
0.1	l	44	l	42	l	42	l	43	l	45
0.2	l	42	l	44	l	38	l	40	l	48
0.3	l	38	l	40	l	40	l	34	l	46
0.4	l	36	l	35	l	35	l	28	l	45
0.5	m	24	l	36	l	35	m	24	l	45

† l = up to 100, m = 100, h = over 1,000 bacteria per microscopic field.
* The number of streptococcus chains per microscopic field.

was a marked decrease in the number of streptococcus chains. The *Esch. coli* exerted the greatest detrimental effect on the accuracy of the test, since only 1, 2, or 3 chains of streptococci were present per microscopic field as compared with 35 chains per field in the control. The presence of the *Br. abortus* and the udder micrococcus did not greatly influence the multiplication of the streptococci. It is therefore important that bacteria not present in the udder be kept out of milk samples without brilliant green dye if an accurate diagnosis of streptococcic mastitis is to be made.

A second series of samples was set up, using another milk naturally infected with streptococcus to which was added 1–50,000 final dilution of brilliant green. This series was examined after incubation at 37° C. for 12 hours. In each case, reproduction of the added bacteria was reduced. Only when large numbers of contaminating bacteria were added to the milk did the number of streptococcus chains per microscopic field decrease. This decrease did not imperil the accurate diagnosis of any sample since at least 20 chains of streptococci were present per microscopic field when the largest number of contaminating bacteria was added, while in the case of *Esch. coli*, where no brilliant green was added, the streptococci were hard to find. Many times only 1 chain was present per microscopic field. Therefore, if few streptococci are present in the original sample and it becomes contaminated with *Esch. coli* as a result of faulty technic in collection, the microscopic diagnosis may not be accurate. The microscopic examination would not reveal the presence of the streptococci because of the crowding effect of the contaminants, or because of inhibitory products of metabolism of the contaminants. The presence of 1–50,000 brilliant green is essential in milk samples submitted for routine test to insure an accurate microscopic diagnosis of streptococcic mastitis.

In routine testing for streptococcic mastitis the milk samples are subjected to different conditions in temperature and time prior to delivery at the laboratory or prior to testing. Since contaminating bacteria influence the accuracy of the examination when tested immediately following collection, the question was raised concerning the effect of such bacteria on the diagnosis when considerable time elapsed before testing, and the influence of the holding temperature during that time on the

TABLE II

The Microscopic Examination of Natural Streptococcus Infected Milk Containing Brilliant Green in Final Dilution of 1–50,000 to Which Varying Amounts of Esch. coli Were Added and Then Subjected to Different Holding Times and Temperatures Prior to Incubation

Amount of Esch. coli Added to 10 c.c. of Strep. Infected Milk c.c.	Microscopic Examination of Milk Samples (1–50,000 Brilliant Green)					
	Incubated at 37° C. for 12 Hours		7° C. for 48 Hrs., then Incubated at 37° C. for 12 Hours		24° C. for 48 Hrs., then Incubated at 37° C. for 12 Hours	
	Esch. coli	Strep.	Esch. coli	Strep.	Esch. coli	Strep.
None	..	50	..	47	..	52
0.1	l	48	l	49	l	43
0.2	l	40	l	49	l	39
0.3	l	37	l	40	m	32
0.4	m	34	l	35	m	27
0.5	m	30	m	31	m	24

accuracy of the results of the microscopic test. To study this, tubes of naturally infected milk containing 1–50,000 brilliant green were inoculated with increasing amounts of *Esch. coli*. One set of tubes with a control was incubated at 37° C. for 12 hours and examined immediately; another set and a control were held at ice box temperature (7° C.) for 48 hours; while the third set and a control were held at room temperature (24° C.) for 48 hours. The results are shown in Table II. In each case the presence of *Esch. coli* in the milk decreased the number of streptococcus chains found per microscopic field. This effect was greatest when the samples were held at room temperature (24° C.) for 48 hours prior to incubation. The explanation may be that room temperature permitted the *Esch. coli* to reproduce, while the streptococci reproduced slowly if at all. When these samples were incubated at 37° C., the coli, already present in large numbers, reproduced more rapidly than the streptococci thereby crowding out the streptococci.

If milk samples are improperly collected and contaminating bacteria gain entrance the test should be made as soon as possible. Brilliant green in 1–50,000 final dilution should be added to each milk sample, thus inhibiting many of the contaminants and decreasing the reproduction of others so that their presence will not greatly influence the accuracy of the results of the microscopic test for streptococcic mastitis. As the period of incubation is increased beyond 12 hours at 37° C. in the presence of contaminating bacteria, the accuracy of the microscopic test for detecting streptococcic mastitis decreases.

SUMMARY

Contaminating bacteria, that may gain entrance to milk samples as a result of faulty technic in collecting the samples, decrease the accuracy of the results of the microscopic test for detecting streptococcic mastitis. *Esch. coli, B. subtilis,* and *Staph. aureus* in decreasing order alter the accuracy of the results of the microscopic test.

Placing 0.1 c.c. of a sterile 1–500 aqueous dilution of brilliant green into each tube prior to collecting a 10 c.c. sample, gives a final dilution of 1–50,000 brilliant green in the milk. This dye greatly inhibits these contaminants, thereby increasing the efficiency of the test if such bacteria are present. It is essential to use proper technic in the collection of the milk samples, so that contaminating bacteria do not gain entrance and to be sure that the streptococci present did not get in from sources outside the udder; and in addition the dye should be added as a preservative to inhibit the bacteria that may invade the udder and thereby be present in the sample.

Bacteria other than streptococci that may be present in the udder and therefore present in the milk sample do not greatly interfere with the accuracy of the microscopic test for streptococcic mastitis, since the reproduction of the streptococci is only slightly reduced in their presence. *Br. abortus* and udder micrococci are of this type. The presence of 1–50,000 brilliant green in the milk inhibits these bacteria so that no effect is noted, in the accuracy of the test, in their presence.

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EDITORIAL SECTION

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THE SIXTY-SIXTH ANNUAL MEETING OCTOBER 5–8, NEW YORK CITY

THE extensive scientific program of the Association's Annual Meeting, to be held in New York City for the first time in 17 years, was published in the August *Journal*.

Important as is this annual review and preview of what has happened, is happening and will happen in our profession, which the Section and General programs cover so well, there are many other concomitants to a convention of the American Public Health Association which are equally stimulating. There is the attending body of convention activities—the entertainment events, the scientific trips, the scientific and technical exhibits, the Health Education Institute, the motion picture program, Health Education and Publicity Headquarters, the American Public Health Association Book Exhibit—to a description of which space is given elsewhere under suitable headings. Beyond all these things which can be enjoyed, seen, appreciated, and studied are the intangibles. Chief among the non-concrete is what can be described only by the word "atmosphere." The atmosphere at an American Public Health Association Annual Meeting is created largely by the delegates themselves. A convention, perfect in its planning, its arrangements, its conduct, can be a dead thing or very much alive depending upon the spirit, the interest, the enthusiasm for a common cause which those who attend contribute to it. The members and guests who attend the Annual Meeting of the American Public Health Association possess those qualities in large measure and also the ability to transmit the seriousness of their own high purpose to others.

That rarest of human attributes, enthusiasm, is abundantly present at an Association meeting. No one who has ever sat through a meeting that extended long beyond the official hour for closing, and seen the reluctance with which

discussions finally came to an end, could possibly doubt that here are people talking shop not because they must but because they want to. With other things beckoning, they voluntarily remain because what they are doing and saying are the things closest to their hearts. That is the true enthusiasm permeating all the convention activities, sometimes to the dismay of the management which must occasionally eject zealous laggards almost by main force.

There are other elements in this "atmosphere." One is contagion—an advantageous contagion. Lowered spirits, discouragement, frequently the sense of failure, are offset by the very physical presence of vivid and successful personalities. Their staunchness, their stability, their psychological attitudes are communicable.

Then there is the comforting consciousness, further contributing to this "atmosphere," that here we meet as equals in an intense community of interests. Young and old, those who have arrived and those who will some day arrive, men and women, the important and the obscure—all are professionally and socially leveled off by the magic of singleness of purpose.

Finally, people have a "good" time at meetings of the American Public Health Association. Many of them admit it, others recognize it only subconsciously, but there is undeniably an air of sociability, of geniality, of good fellowship, which characterizes these annual gatherings. This is far removed from the back-slappings and boisterousness that have become almost synonymous with conventions. Indeed, the cities and hotels that have entertained the American Public Health Association have commented again and again upon the dignity and decorum that prevailed throughout. But mutual regard and respect, genuine pleasure at renewing old and making new acquaintances, a satisfaction in a quickened tempo of living for a few days, these emotional emanations are all but visible and help to make our "atmosphere."

With this introduction, the Local Committee for the 66th Annual Meeting in New York City, October 5–8, and various other Committees responsible for the comfort and diversion of the 4,000 delegates expected, invites you to turn to pages 946–954 and read specific details about other aspects of the Annual Meeting more substantial and less difficult of description.

BOVINE TUBERCULOSIS

BOVINE tuberculosis continues to be an economic problem in every part of the world. The possibility of infection of human beings by the drinking of milk from tuberculous cattle is now acknowledged everywhere and is one of the very great reasons for insisting on the pasteurization of milk, though protection against other diseases is also obtained. In the last few years the prevalence of undulant fever has been emphasized, and in this we have another strong argument for the universal pasteurization of market milk.

From time to time we have called attention to the studies of human tuberculosis derived from bovine sources. In place of the teaching held for so many years that the manifestations of bovine tuberculosis in human beings were confined to the glands, bones, and joints, we now know that a not insignificant number of those so infected show pulmonary tuberculosis. The latest report [1] that has come to our notice concerns a most unusual occurrence in which in a Swedish rural community, 50 persons, mostly children, suddenly showed signs of tuberculosis. An open case of human pulmonary tuberculosis was suspected and

sought for, but none found; and 166 persons, of whom 134 were school children, were tested with tuberculin. Of those giving a positive reaction practically all had been supplied with raw milk from one dairy of 22 cows which was selling unpasteurized milk and justifying it by the claim of veterinary control over the herd, in spite of the fact that some of them gave positive tuberculin tests, but showed no "clinical" signs of what the veterinarian considered "an infectious form of tuberculosis."

Finally the cows were subjected to individual milk tests and one which had been passed as free from tuberculosis by two veterinary surgeons was found to have a mastitis which resembled the usual type due to streptococcus. However, the milk teemed with tubercle bacilli. This cow was slaughtered and found to have tuberculosis of the lungs as well as of the udder. Three other cows of the 22 were found to have pulmonary tuberculosis. Of the 50 infected persons in the outbreak, 25 gave more or less violent reactions, some suffering from erythema nodosum, some from enlargement of the cervical glands, and still others from a high and persistent fever.

We concur in the opinion of the reporter of this outbreak that it teaches a clear lesson which should hardly need repeated emphasis; namely, that if raw milk is given to children, a clinical examination of the milch cows, even by the most skillful veterinary surgeon, is not sufficient. Tuberculosis of the udder is apt to develop quickly and run an acute course which, however, may escape detection in the living animal. Not only should milch cows have the tuberculin test, but all market milk should be pasteurized, and this applies even to what we know in this country as certified milk.

REFERENCE

1. Stahl, S. An Epidemic of Tuberculosis Caused by Milk Infection. *Nord. Med. Tid.*, Vol. 13, 1937, pp. 121–125.

PASTEURIZATION IN ENGLAND AND AMERICA

PASTEURIZATION of *all* market milk is now generally recognized by health and medical authorities, by most of the dairy industry, and by a substantial proportion of the people of this country as an *essential* public health measure. In England, on the other hand, pasteurization has received much less wide recognition, although this desirable procedure is strongly advocated by leaders in the British medical and public health professions, who have frankly stated that the quality of their national milk supply is "unsatisfactory." [1]

The process of pasteurization was introduced in the United States more than half a century ago.[2] Its adoption was slow for about 2 decades, but after 1910 it made fairly rapid progress, especially in our larger cities. Today, it is estimated that about 88 per cent of the milk supplies in all cities of over 10,000 population is pasteurized, and that a similar proportion of our market milk comes from tuberculin tested cattle.

The amount of pasteurized milk varies, of course, in different parts of the country, being highest in the northeastern and middle Atlantic states, and lowest in the south central sections. The general average is also raised by the largest cities, such as New York, Chicago, Detroit, Cincinnati, Boston, and Philadelphia, where more than 99 per cent of the supply is now pasteurized. In London, about 90 per cent of the milk is pasteurized,[3] and in Glasgow, 85.4

per cent is submitted to "some form of heat treatment before delivery," although only 36.5 per cent is pasteurized by holding processes that are licensed.[4]

In our smaller communities the situation is, unfortunately, much less propitious, since only about 39 per cent of the milk supplies in American municipalities of 1,000 to 10,000 population is at present pasteurized. In cities of 5,000 to 10,000 population, about 50 per cent of the milk is pasteurized, while only 40 per cent is safeguarded by this means in the 2,500–5,000 population group, and only 23 per cent in communities of less than 2,500. In this large number of small places, only 5 per cent have reported that all milk is pasteurized, whereas in 43 per cent of these municipalities, no milk at all is pasteurized.[5] These figures indicate that market milk in our large cities is much safer than in the rural sections of the country.

About 2 years ago health officers and physicians hailed with satisfaction the adoption of permissive pasteurization for certified milk.[6] Although the application of this beneficial process to our highest grade of milk has been gratifying in one or two cities, notably Boston and Chicago, its increase has been disappointing in New York and many other cities. Certified milk, valuable as it is, constitutes of course only a relatively small proportion of the milk supply, but even it is not too sacrosanct to benefit from pasteurization, and more of it should be pasteurized.

Consumption of pure milk in the United States is considered by authorities on nutrition to be about one-half as great as it should be in the interests of optimum nutrition, but even so it is approximately 3 times as high as is milk consumption in Great Britain. In that country there has recently been considerable agitation for the wider use of milk, but medical authorities have pointed out that the first and most important procedure is to provide the British people with clean and safe milk, made partially safe by tuberculin testing of cattle and other measures to assure freedom from disease in dairy animals, and completely safe by universal pasteurization.[1]

Recent investigations at the National Institute for Research in Dairying at Reading, in Great Britain, have confirmed the fact that pasteurization has no appreciable effect upon the excellent nutritive qualities of milk.[7] There is no change in the nutritional availability of the calcium and phosphorus nor in the true digestibility of the nitrogen; and neither vitamin A nor its precursor, carotene, is damaged. There is a slight loss of vitamin B, and about 20 per cent destruction of vitamin C if the milk has been exposed to light before heating.

These studies show, says an editorial in the London *Lancet*,[8] "that milk suffers no damage by pasteurization that is important, compared with the risks of drinking it raw." That is an axiom that can be heartily and enthusiastically endorsed for general application in this country. ***Raw milk, whether in England or America, should no longer be permitted to impede public health progress.***

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1. Edit. Tuberculin-tested Milk. *Brit. M. J.*, Apr. 10, 1937, p. 814.
2. Tobey, J. A. History of Pasteurization. *Milk Dealer*, May, 1937, p. 52.
3. Corres. Pasteurization of Milk. *Lancet*, Dec. 13, 1930.
4. Edit. Compulsory Pasteurization for Glasgow. *Brit. M. J.*, May 1, 1937, p. 926.
5. Report: The Milk Business in Communities with Populations of 1,000 to 10,000. *Milk Plant Month.*, Mar., 1937, p. 38.
6. Edit. The Pasteurization of Certified Milk. *A.J.P.H.*, Aug., 1935.
7. ***Milk and Nutrition.*** Part I: Effect of Commercial Pasteurization on the Nutritive Value of Milk, as Determined by Laboratory Experiment, 1937. Natl. Inst. for Res. in Dairying. Reading.
8. Edit. Is Pasteurization Harmful? *Lancet*, May 15, 1937, p. 1179.

PUBLIC HEALTH EDUCATION*

You are invited to contribute specimens of printed matter and other materials for display at Health Education and Publicity Headquarters. See below for details.

You are invited to call, again and again, at Health Education and Publicity Headquarters in the Pennsylvania Hotel during the Annual Meeting in October.

Health Education and Publicity Headquarters—At the Annual Meeting, A.P.H.A., in October, a space 18 by 60 feet will be devoted to school and adult health education, with chief attention to the latter.

A few yards away will be the all day movie theatre; not far distant will be the scientific exhibits; and spread over the mezzanine and in the ball room and elsewhere will be found the technical exhibits.

Printed Matter and Other Materials for Display—Whatever can be incorporated in the classified portfolios should be sent in September to the chairman of the committee, Evart G. Routzahn, Health Education Headquarters, 130 East 22d St., New York, N. Y. This would include selected copies of anything printed, mimeographed, or otherwise duplicated.

Scrapbooks, Exhibits, etc. —All such material should be shipped direct, prepaid, to Pennsylvania Hotel. *But please be sure to write in advance to the chairman* (as noted in preceding paragraph) to get full and final instructions.

Please do not expect to be given space if you have not made advance arrangements. Space is too limited, and plans must be made for the use of the space before the exhibits are placed. Disappointment and serious inconvenience would result if any one failed to report proposed exhibits in advance.

Movies Both Amateur and Professional—Announcement is made elsewhere with the Annual Meeting information that an all day motion picture theatre will be located in the Pennsylvania Hotel. It is expected that during the 4 days of the convention, from 9:00 A.M. through the day on the hour a picture or other projection material will be shown in accordance with the schedule in the official program. Early correspondence is important if any one has a film to be shown and to be scheduled in the program.

1937 Early Diagnosis Campaign—From month to month the *Bulletin* of National Tuberculosis Assn. has published facts and figures showing the wide extension of Early Diagnosis Cam-

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N.Y.

paign in 1937. In quantity and quality it seems to have surpassed all other health campaigns. We were not able to record here the nature of the materials offered, and the plans outlined. This information was available through the state tuberculosis associations, and was not given out by the National Tuberculosis Assn. direct to nationally circulated periodicals.

Why Do We Need Health Education?—Here is one answer from the *New York Times* (July 1, 1937):

Tappan, N. Y., June 30—Rather than submit his pet Jersey cows, Molly and Sylvia, to tests by the state for the eradication of bovine tuberculosis, Robert Gibson, lawyer, ordered them shot. The animals were dead this morning when veterinarians, acting on orders from Albany and backed by state troopers, arrived at Mr. Gibson's home here to conduct the tests.

Mr. Gibson, who is a native of Virginia, said today, "these tests are unreliable and fostered by the milk trust to do away with all privately owned cows."

"In company with Senator Carter Glass, whom I count among my friends, I am opposed to them," he explained. "The new legislation is beyond the attempts of Stalin, Hitler, and Mussolini. I felt that it was time somebody did something of a drastic nature to fight this new Tuberculin Test Law. There are other laws that are taking our freedom away. They, too, should be fought."

Where They Learn About Health or Disease—An intensive newspaper and radio campaign in Detroit, was followed a few weeks later by an effort to check the sources of information about tuberculosis.

The question was asked as to whether the family knew anything about the antituberculosis campaign in the city, and if so, their source of information.

The information sources where reported were as follows: radio, 147 . . . newspapers, 93 . . . regular Department of Health nurse visits, 20 . . . special Department survey nurse visits, 501 . . . other miscellaneous sources, 38 . . . a total of 826, one for each of the families. Dr. Bruce H. Douglas adds that the families lived in "an area of very low economic status where there are relatively few radios, and where newspapers are not read very extensively."

One wonders that some of the 826 had not heard of the campaign from more than one source. If there were such cases how was a selection made for the record? Was the record based on the report of one member of the family? And it would be interesting to know how the answers were secured. What question (or questions) were asked? It is not an easy job for a visitor to get accurate information.

Thirteen Uses for Broadcast Material—If you have broadcast a health talk and let it go at that, you may have overlooked a half dozen to a dozen other uses for that same material.

For details of what has been done with non-health material see "Catalogue of Educational Radio Script Exchange," issued *free* by Office of Education, Washington, D. C.

See under "Thirteen Uses for Script Materials" how different cities have carried out the following:

Scripts are broadcast by high school groups over local radio stations and are criticised by high school listener groups.

Scripts are broadcast as features over educational radio stations.

Scripts are produced by the professional production staffs of commercial stations as sustaining programs.

Scripts are used in "mock broadcasts" over sound systems in schools.

Scripts and supplementary materials are used in connection with courses of instruction in journalistic writing.

Scripts are used in junior college speech classes.

Community groups produce "mock broadcasts" at community meetings.

Script materials are used in adult classes studying education by radio.

Scripts are broadcast over C.C.C. camp sound systems.

Materials are used in libraries for reference purposes.

Scripts are used by institutions for the blind.

The instances quoted refer to broadcast scripts supplied by the Office of Education, but the examples should click into ideas for the wider use of the better grade of health broadcast material.

Diabetic Education — In "Some Aspects of the Management of the Diabetic Patient," by W. R. Campbell:

The diabetic education of the patient should be as broad as he is capable of assimilating. Better coöperation may be expected from a patient who can understand the value of and reasons for therapeutic measures. Only for the few is this plan undesirable since, with comprehension of their problems, there comes a knowledge of how to combat them and an interest in attaining to the best results. A simple primer or guide book is best to start with, supplemented by explanations graded to the individual. Later, some diabetics will become omnivorous readers of all available diabetic literature.

—*Canadian Public Health Journal*, 105 Bond St., Toronto, Ontario.

Nine Point Syphilis Control Program—As outlined by Dr. Thomas Parran (*Journal A.M.A.*, July 17, 1937) the ninth point or principle is:

The public educational program must be persistent, intensive, and aimed especially at those individuals in the age groups in which syphilis is most frequently acquired.

Distillers Are Getting Scared—A new channel for safety education:

It will be a long time before a more revealing advertisement appears than that which "The House of Seagram" inserted in the daily papers last week. Thousands of dollars were spent by this distillery to warn the public, in scarehead type: "We who make whisky say: 'Drinking and driving do not mix!'" Without cost to the Seagram company we reproduce a considerable part of its advertising copy: "This statement may seem to work directly against our self-interest. But actually it does not. It is very much to our self-interest to see that the privilege of drinking is not abused. It is to our interest to see that liquor is consumed as it should be consumed. Whisky is a luxury and should be treated as such. . . . Neither whisky nor any other alcoholic liquor has any place at the wheel of an automobile. Drinking and driving do not mix. This conviction must be shared by everyone who reads the newspapers and by every thinking person who drives a car. . . . If you expect to be at the wheel of a motor car, we say to you: 'Think before you drink! Don't drink before you drive!'" No inside knowledge of conditions in the liquor industry is needed to understand what must have caused the publication of this remarkable warning. As the horror of the national highway massacre mounts, and the part which liquor is playing in this slaughter is borne in on the public mind, the distillers begin to see a day of retribution close at hand. Something must be done, and done quickly, or to save its own life an aroused public will take drastic regulatory measures. Hence this Seagram warning which is as much appeal as warning. After the appeal fails to accomplish its purpose—as it surely will—one wonders what the distillers' next move will be.

In *Christian Century*, 440 S. Dearborn St., Chicago, Ill., July 14, 1937. *15 cents.*

The King's Example—Not alone will be our Canadian readers in their interest in the paragraphs we quote from an article in *Health*, 105 Bond St., Toronto, Ontario, June, 1937 (*15 cents*):

The growing realization throughout the British Empire of the importance of good health will be stimulated into greater action, on all fronts, by the reign of His Majesty, George VI.

No other movement has ever had more sincere patronage than health has had from our new King, and the example he has set to his subjects, unquestionably, will arouse the active interest of leading men and women throughout the Empire.

In the biography of George VI, published in the Coronation Number of the *London Times*, the following paragraph will bring

encouragement to all interested in the great war against disease:

"As president of the British Empire Cancer Campaign he has been indefatigable in his efforts to promote the progress of research; and, after the death of King George V, many of the presidencies of hospitals formerly held by the Prince of Wales were accepted by the Duke, who devoted a great deal of his time during the months which followed in visiting each in turn."

The English Have a Book—A book of a type much needed for the United States and Canada as illustrated by *Health Education Year Book, 1937–8,* issued by Central Council for Health Education, 1, Thornhaugh St., Russell Square, W.C. 1, London, England. 5s. 6d. Orders may be sent direct, or through the A.P.H.A. Book Service.

This cloth bound book lists a wide range of health organizations, and organizations issuing some form of health education material. What they do, and the health education material they offer is given in detail.

There are classified lists, printed matter, periodicals, plays, posters, exhibits, slides, motion pictures, and speakers. Introductory paragraphs suggest uses and opportunities for various materials.

What Do They Like Best?—Good publicity for camps and other summer projects may result from collecting food choices and other preferences of the campers.

The Children's Welfare Federation (325 E. 38th St., New York, N. Y.) gathered answers to widely diverse questions from camps accommodating thousands of boys and girls in 1936. Especially striking was the second choice of spinach as a favorite vegetable of the boys.

The form of the questions and the way they are presented to the children may affect the validity of the answers. We hope that some bright health educator will devise a plan for making the questionnaires useful in spreading information.

Why Not Use More Postal Cards?—Both for economy, and for quick, direct delivery of health messages more use might be made of postal cards or post cards. In addition to the back for business or for health education, the left half of the address side may be used for either business or education.

A "postal card" is the government card, one cent covering postage and cost of the card. A "post card" is a privately printed card of approximately the same size and weight as the government card. You pay one cent postage and buy the card in addition.

Without handwriting, except for the address, a card larger than the postal card may be used.

Health Education in Great Britain—"Annual Report" of Central Council for Health Education, 1, Thornhaugh St., Russell Square, W.C. 1, London, England, describes and illustrates the activities of an organization quite different from anything in this country. What seems to be lacking is a well defined program of health education, in contrast with a program of health education activities. Recognition of this lack is implied in the announcement of a National Public Health Campaign Committee which is to state the need and to formulate a plan.

Health Education in Books—A third book on popular health education is out according to announcement by W. B. Saunders Company, Philadelphia, Pa.

Health Education of the Public is "a practical manual of technic" by W. W. Bauer, B.S., M.D., director, Bureau of Health and Public Instruc-

tion, American Medical Association, and Thomas G. Hull, director, Scientific Exhibit, American Medical Association.

Another book on popular health education is well under way, and yet another one is coming along. We will be starting our own "five book shelf."

"Tell It With Exhibits"—A 16 page, mimeographed pamphlet with this title, written by Mary Swain Routzahn, issued by Social Work Publicity Council, 130 E. 22d St., New York, N. Y. *35 cents.*

The current vogue of welfare expositions prompted the publication. Written broadly for social welfare agencies, the application to public health is frequently obvious, especially when health agencies participate in a general welfare show.

The Health Officer—This publication of the U. S. Public Health Service, Washington, D. C., quotes liberally (April, 1937) from a conference of the English Central Council for Health Education.

The June, 1937, issue includes:

Venereal Disease Information increases circulation . . . Federal Art Projects produces posters for local health department . . . "Pulitzer citation for New York *Daily News* venereal disease campaign" . . . How would you answer this one? (sample of misinformation).

Hygeia, August, 1937—Published by A.M.A., 535 N. Dearborn St., Chicago, Ill.:

Hay fever and weeds . . . In conditioning . . . What does the heart murmur say? . . . It's ice cream—and there's sauce for it . . . Sympathetic inflammation (of the eye) . . . Diabetic gangrene . . . The truth about acidosis (notwithstanding the advertisements, it's not common, and it's not due to diet) . . . Bad habits in good babies (crying, thumb sucking, etc.) . . . The tuberculosis of today (a radio talk) . . . Florence Nightingale (as a human being) . . . Mad dog! (told to a small boy) . . . Animals of destiny (and what they do for and to mankind) . . . Odd oriental cures (picture page) . . . "Doctor, what dentifrice shall I use?" . . . Contact glasses (for the eyes) . . . Is Mary's back straight? (and what to do about it) . . . Rabies ("a plea for conquest through coöperation") . . . Health resorts (points for picking one) . . . Cathartic-conscious America . . . New books on health . . . Questions and answers . . . Tennis for any age . . . Andreas Vesalins (1514–1564) . . . "But it was only a little pimple!" (but it brought death to the navy).

In "School and Health":

Who should teach youth? . . . Our health-centered program (Somerset County, N. J.) . . . Safety on the highway (Arcata, Calif.) . . . Sources for materials on safety.

Health Education in the Journal—In *American Journal of Public Health*, July, 1937:

In "Developing a Housing Program in a Southern City," by Graves and Fletcher, pages 652 and 654:

By shading a map of the city on the lowest index blocks and then the blocks next best and so on, it has been possible to put on paper, for study, a picture of slum housing conditions so that the cores of bad areas stand out, and radiating from these cores are the slums in varying degrees of dilapidation and insanitation.

In "Practical Aspects of Public Mental Hygiene," by Liber, "easy courses in child upbringing for parents and future parents" are urged (page 687); where schools do not "teach the necessary sexual facts to adolescents, public health agencies should undertake this work and open classes for young people" (page 688); and (page 688):

Although alcoholism has its roots in social life, an intensive educational campaign against it should be inaugurated and waged unceasingly . . . Educational instructions and campaigns should not be of the "Don't Spit on the Floor" type or in the form of an order to be obeyed blindly. No one coöperates with such orders, because they are not convincing. Reasons must be given and the interest of the people, nay, even their enthusiasm must be aroused.

In "Infant Mortality in New York City," by Rice and others: under "Probable Causes for the Reduction" (page 703) part of credit goes to "the general health education of the public," and the splendid coöperation in matters pertaining to public health" given by relief agencies," and (page 705) "the education of all women to secure early, adequate, and continuous prenatal care is being stressed."

"Preliminary Report of the Sub-Committee on the Educational Qualifications of Public Health Statisticians" (page 707).

"Preliminary Report of the Sub-Committee on the Educational Qualifications of School Health Educators" (page 711).

"Preliminary Report of the Sub-Committee on the Educational Qualifications of Adult Health Educators" (page 717).

For those who write for the *Journal* and other periodicals: "Remember the Editors and the Printer" (page 728).

New members of Public Health Education Section are listed on page 753.

Health "Best Sellers" are noted on page xx.

And exhibits at the 66th Annual Meeting are mentioned on page xix.

AVAILABLE FOR USE

"Children's Bureau and Other Publications Relating to Children." List of government publications. Supt. of Documents, Washington, D. C. Revised. *Free.*

"How to Save a Life from Drowning." Artificial respiration, prone pressure method. 4 pages. Connecticut State Dept. of Health, Hartford, Conn.

"Ivy Poisoning: A Summer Health Problem" is a better than usual pamphlet of 6 pages with cover; ivy pictured on first cover page, poison sumac on the last cover page. State Dept. of Health, Albany, N. Y.

"Measles," a 4 page folder. The dangerous age; importance of care; symptoms; parents must prevent the disease; prevention of deaths. New York State Dept. of Health, Albany.

"The Publications of the N.O.P.-H.N." National Organization for Public Health Nursing, 50 W. 50th St., New York, N. Y. Revised, classified list of reprints, publicity loan folders, plays, etc.

"The Relief of Pain in Cancer Patients," by Dr. E. M. Daland. Professional. Supt. of Documents, Washington, D. C. *5 cents.*

Slides on public health nursing are offered by National Organization for Public Health Nursing, 50 W. 50th St., New York, N. Y. The 26 pictures have been chosen to represent a variety of public health nursing activities. Each slide carries a caption. An explanatory sheet accompanies the set. *$2.50 for a week,* plus transportation costs.

It should be quite possible to make a local application of them, and doubtless they will be popular for annual meetings and other meetings where it is desired to give a broad picture of public health nursing service.

"Somebody's Boy," a boy picture, and several verses. A safety poster, one of many from Employers Mutuals, Wausau, Wis. *Free.*

"A Summer Reading List" will be supplied by National Public Housing Conference, 112 E. 19th St., New York, N. Y. *Free.*

"Mats supplied" as noted from time to time in this section of "Public Health Education" means that a paper "mat" will be supplied so that a newspaper may reproduce display headings and text, making a cut which can be assembled with other cuts and type in making up forms for the printed page.

"Child Health and Common Sense" is a series of 250 words syndicated series of health articles by Dr. A. G.

Ireland, director of physical and health education, New Jersey State Dept. of Public Instruction. Copy and mats supplied by Health News Service, 22 E. 40th St., New York, N. Y. *Free.*

"Safe Way to Reduce? Yes, But Be Careful." A second series by "The Health Reporter." Mats supplied. Health News Service, 22 E. 40th St., New York, N. Y. *Free.*

Also from the same source "vital health questions" and "valuable health hints" in a series of cartoon questions and answers entitled, "What Do You Know about Health?"

"Speaking of Safety" is a series of 24 cartoons, 4 inches by 5½ inches, mats being supplied free to the editor in each city who first asks for them. "The illustrations deal with leading causes of highway accidents and attention is focused on them in a novel way." National Safety Council, 20 N. Wacker Drive, Chicago, Ill. *Free.*

From Children's Bureau, Washington, D. C. *(free)*:

"When Disaster Cuts Down Home-Grown Food." Large page folder, food guide for the family.

"Physical Status of 219 Pueblo Indian Children," by Dunham, and others, 11 pages.

"Child Management," by D. A. Thorn, M.D. Revised. Children's Bureau, Washington, D. C. Includes sex instruction.

DEEDS AND DEVICES

Allstate Insurance Company, Chicago, Ill., Sears Roebuck automobile insurance affiliate, issues a wall calendar with health and other usable information on the back of the date sheets.

Before a group of distinguished guests, President Roosevelt presented the 1937 award in the Gorgas essay contest, conducted by Gorgas Memorial Institute, 1835 Eye St., N. W., Washington, D. C.

"Chicago Poll Opens War on Social Disease . . . Questionnaire asks each citizen if he is ready to take free and secret blood test for syphilis . . . Referendum Seeks Clinical Needs Data . . . U. S. providing franked envelopes; Illinois and City Boards take part." Thus did Chicago's Mayor Edward J. Kelley's Committee for the Control of Syphilis and Gonorrhea get front page space in *New York Herald Tribune*, and other New York dailies.

"Child Health Section" of *Journal and Sentinel*, Winston-Salem N. C., appeared May 2, 1937. A 20 page tabloid, with articles by Dr. Vaughan of Detroit, Dr. Ferrell of New York City, Dr. Myers, University of Minnesota, and many others.

District health officers of New Mexico, in conference, adopted the following resolution:

WHEREAS the most fundamental and lasting benefits of the science of hygiene are secured to the people by their education in the ways of health and . . .

WHEREAS the spread of such knowledge in this state can be achieved much more effectively diagraphically than dialectically and

WHEREAS the newspapers of the state constitute the most potent medium for diagraphic presentation, be it

RESOLVED that this third conference of District Health Officers records its deep sense of obligation to the press of New Mexico for its interest in the public health and for its generous allocation of space to news stories and feature articles on public health.

Ernest Poole, the author, has written a long series of letters in the course of several years in which appeals have been made for Henry Street Nursing Service, 99 Park Ave., New York, N. Y. A summer vacation letter is accompanied by a blotter which carries a Skippy strip in three pictures.

A folder, "privately printed," to thousands of departmental workers, professional and non-professional, who by their combined efforts have advanced New York City's hospital standards, this pamphlet is dedicated by a grateful executive. The 9 pages of copy is all quoted material about the Dept. of Hospitals or the hospitals: national, state, or local groups or individuals

who have visited, studied, or written about the department or the hospitals.

The following advertisement was inserted in Toronto newspapers by Health League of Canada:

Summer Resorts: Attention! Summer hotel owners!

The Health League of Canada is compiling a list of Ontario summer hotels which serve only pasteurized milk. If your name should be on this list please advise us at once. Health League of Canada, 105 Bond Street, Toronto.

A gonorrhea placard, and two syphilis posters in color have been issued by State Dept. of Health, Trenton, N. J.

"Help save 38,000 lives. Cut traffic accidents 35 per cent by 1940" is a message in red stamped on outgoing envelopes by a postage meter. For sample ask National Safety Council, 20 N. Wacker Drive, Chicago, Ill.

"Learn to do your part in prevention of disease" is printed near the top edge of envelopes of Baltimore Dept. of Health.

A placard from the Newark, N. J. Health Dept.:

Kissing the baby—unnecessary—unclean—dangerous—Protect me! We need your help—please do not kiss me! A kiss can be as dangerous as a bomb by spreading disease—Don't kiss the baby!

"Speed and Sudden Death—Drive Carefully" are stamped on mail by the postage meter of Jefferson County Board of Health, Birmingham, Ala.

Toronto has had a successful "Toxoid Week."

FOR EDUCATION OR REFERENCE

An analysis of the recently published study of medical care, and editorial discussion of the report, appear in *Journal of A.M.A.* April 10, 1937.

For examples of posters and information about other materials and devices offered to English health agencies see *Occasional Bulletin*, Health and Cleanliness Council, 5, Tavistock Square, London W. C. 1, England. *Free.*

"Medical Society Issues Warning against Pneumonia" and "My Idea Is This—On the Best Doctor." Newspaper reprints; letter size sheets. Public Relations Bureau, Medical Society of State of New York, 2 E. 103d St., New York, N. Y. *Free.*

The National Research Council has appointed a Committee on Scientific Aids to Learning, with James B. Conant, Harvard University Chairman, and Bethnel M. Webster, attorney and counselor at law, secretary. Dr. Irvin Stewart, engaged as director, has announced that the committee will be interested in motion pictures, broadcasting, photography, and mechanical recording of sound.

"New Health Frontiers." Report of 1937 Annual Conference of Milbank Memorial Fund, 49 Wall St., New York, N. Y. Housing, problems of adult life, nutrition, etc.

"The Newest Foster Mother," by J. A. Tobey. About quick-frozen human milk. Reprint. Address the author: 350 Madison Ave., New York, N. Y. *Free.*

"Public Health and the Traffic Accident Problem," another contribution of N. L. Burnette toward new approaches in studying and handling motor accidents. *Canadian Public Health Journal*, 105 Bond St., Toronto 2, Ontario. July, 1937, *35 cents.*

"Recent Progress in Health Education," Dr. W. P. Shepard. Reprint. Address the author, Metropolitan Life Insurance Co. San Francisco, Calif. *Free.*

"The Teaching of Cancer," by Dr. F. E. Adair, tells about the education of the lay public, of the doctor, of nurses and social workers, and of the medical student. "News on Cancer Education" introduces a new publication. "Fortune Article Published as

Book" describes the dollar book in which "Cancer, the Great Darkness" has been republished. "Revised Cancer Film Prepared for England" is a British form of the March of Time cancer episode. And two articles relate to the Women's Field Army. All of this in *Bulletin,* American Society for the Control of Cancer, 1250 6th Ave., New York, N. Y. July, 1937.

"What the Editors Say About Fireworks Accidents." Letter size folder, 4 pages, reproducing editorials. National Society for Prevention of Blindness, 50 W. 50th St., New York, N. Y. *Free.* Illustrates a usable idea.

"Work for a Sane Fourth," by Alfred E. Smith; "It Can Be Safe and Sane" by L. H. Carris. Reprints. National Society for Prevention of Blindness, 50 W. 50th St., New York, N. Y. *Free.*

MAGAZINE ARTICLES

We serve health education as well as the editor of our favorite general magazine when we write to the editor to suggest timely topics which have health implications.

But we need to get those suggestions to the editor well in advance of any possible publication date. The larger the circulation the more time elapses between the actual writing of an article and its publication.

All of the new picture magazines seem to be carrying more or less useful and entertaining material bearing upon phases of public or individual health, including the nature of the human body.

Some topics in June, 1937, issue of *Better Times,* Welfare Council, 44 E. 23d St., New York, N. Y. *(35 cents)*: "Accomplishments in Health and Welfare Legislation," "Committing Mentally Defective Children," "Social Work as a Psychiatrist Sees It," "Housing Highlights in Legislation," "District Health Center Development in New York City," "Medical Social Service in New York Hospitals," "The Place of the Social Worker in Venereal Disease Control," "Care of Chronically Ill Children."

"Damien the Leper," by John Farrow. *Book Digest,* 350 E. 22d St., Chicago, Ill., July, 1937. *25 cents.* "A story of the adventures of that strange, dogmatic, fanatical Saint of God who dared the physical horrors of a leper colony at its worst."

"Life Squanderers." Editorial on American accident losses, pointed up by comparison of deaths in building the two great San Francisco bridges; a plea for community organization and education. Good for republication. *Collier's,* March 27, 1937.

"Don't Dent Your Fenders," by M. M. Stearns. *Collier's* June 12, 1937. "Almost everyone has a plan for stopping traffic accidents." "It was a motorcycle cop who got the idea of starting systematically at the bottom."

"Help in Sight," by J. D. Ratcliff. *Collier's* June 26, 1937. "Contact lenses that are fitted directly over the eyeball."

"We Can End This Sorrow," by Paul deKruif and Dr. Thomas Parran. *Ladies Home Journal,* Aug., 1937. Syphilis in Denmark. The companion authors insure closer adherence to actual facts than is always the case.

"Medical Care, Economics Debated: American Foundation Publishes Exhaustive Report on Study" (2 page review); "Slimming Fare: Barnard Girls Lose Weight through New Diet." *Literary Digest,* 354 4th Ave., New York, N. Y., April 10, 1937, *10 cents.*

"Gas Death Lurks on Unseen Wings: Carbon Monoxide Kills in Homes, Automobiles and Airplanes" ("four times as many gas deaths occur in homes as in private garages"); "Crackers and Milk: 'John D.' Beat Dyspepsia by Diet and Regular Habits for Longevity"; "Head-lights Glare on Auto Victims; Hit-and Run Drivers Haunted

by Dirges of Screeching Brakes." *Literary Digest,* June 5, 1937.

"Bold Pastor: Oklahoma Brings Syphilis Problem out into Open Church Discussion"; "Ministering Blue Angel of Mercy: Visiting Nurses Are Unsung Heroines of War on Disease"; "Allergy, Pollen and Ah-Choo Time: Hay-fever No Joke to Sufferers, Boon to Weedless Resorts." *Literary Digest,* June 12, 1937.

"Goblin Knocking at Doctor's Door: Socialized Medicine, Medical Phenix, Rises from Its Ashes." *Literary Digest,* June 19, 1937. Also: "Cheat Heat. There Are Ways of Drinking, Dieting, and Dressing to Keep Cool."

"Death's Holiday: Life and Limb in Jeopardy in Annual Orgy of Fire and Noise." Includes a "Foolish custom" quotation from 1729. *Literary Digest,* June 26, 1937.

"Summer Hazards: Best Cure for Poison-ivy and Snakes—Keep Away from Both." *Literary Digest,* June 26, 1937.

"Making Births Easier for Fathers." "Hospitals Are Providing Relaxing Salons for Fretting Sires." "Premarital Tests: States Awake to Disease Dangers, Hold up Marriage Licenses." *Literary Digest,* July 3, 1937.

"Where There's an Accident: Can You Help? Or Like Most People, Do You Simply Stand and Watch?" A picture page in *Look,* Des Moines, Iowa, Aug. 3, 1937. *10 cents.* A reminder that a group of pictures in sequence, with brief captions, are useful in stating problems, or in showing their solution.

"The Doctor's Dilemma." Editorial. *Nation,* 20 Vesey St., New York, N. Y. June 19, 1937. What really happened at Atlantic City at the A.M.A.

"Oklahoma Tries Coöperative Medicine," by J. Rorty. *Nation.* May 29, 1937. Oklahoma Medical Assn. vs. Farmers Educational and Coöperative Union.

"Recent Medical Progress," by Iago Galdston, *New Republic,* 40 E. 49th St., New York, N. Y., June 23, 1937. Heart surgery, the rest and starvation treatment of coronary thrombosis, protamine, insulin, fever therapy, insulin shock treatment of dementia praecox, prontosil.

"Research: Dr. Slye Lays Cancer Plans for Mice and Men" (with page of illustrations); "Fever: Therapists Convene, Affirm Wisdom of Hippocrates," *News-Week,* 1270 6th Ave., New York, N. Y. April 10, 1937. *10 cents.*

"Nationalized Doctors?" The American Foundation report, and the A.M.A. discussion. *Time,* 330 E. 22d St., Chicago, Ill. June 21, 1937. *15 cents.*

MOTION PICTURES

The Associated Press reports:

Animated cartoons on the ceiling, innovation in dentistry, are proving "very satisfactory" as a sedative for children's fear, said Dr. H. S. Dwyer of New York University.

"The Eternal Mask," by S. A. Oldham. Description of a Swiss motion picture, a study of modern psychiatry; endorsed by Dr. Joseph Jastrow. *Trained Nurse,* 468 4th Ave., New York, N. Y. April, 1937. *20 cents.*

If you are concerned about the mental or other social aspects of commercial motion pictures ask for a free sample of *Film Survey,* published by Associated Film Audiences, 250 W. 57th St., New York, N. Y.

Journal, A.M.A. (May 8, 1937) says:

In connection with recent emphasis on syphilis as a public health problem, the American Medical Association, by action of its Board of Trustees, and the U. S. Public Health Service, have jointly engaged in the production of a clinic on syphilis in a talking motion picture. After a preliminary announcement in the picture by Surgeon General Thomas Parran and President Charles

Gordon Heyd, the diagnosis of syphilis is covered by Dr. John H. Stokes of Philadelphia. Latent syphilis is discussed by Dr. Paul A. O'Leary of Rochester, Minn., the treatment of syphilis by Dr. Harold N. Cole of Cleveland, late syphilis by Dr. Joseph E. Moore of Baltimore, syphilis in pregnancy by Dr. James R. McCord of Atlanta, Ga., syphilis in the child by Dr. Philip C. Jeans of Iowa City, and the public health aspects of syphilis by Dr. Raymond A. Vonderlehr of the U. S. Public Health Service. The technic of taking blood for a Wassermann test, spinal fluid examination and intravenous injection are shown. The systematic technic of treatment is revealed not only on patients but also diagrammatically. It is hoped to provide with the picture a reprint of the main points brought out so that those who attend may carry away a permanent reference to the significant information. Copies will be made available to state and county medical societies, hospital conferences and other assemblages of physicians.

NEW

Literary Digest and *Review of Reviews* now combined and known as *The Digest*.

Ohio Public Health, Ohio Public Health Assn., 1575 Neil Ave., Columbus. An interesting feature is the 2 page list of staffs of state departments and state associations having to do with health.

Plain Facts, Bureau of Venereal Disease Control, New Jersey State Dept. of Health, Trenton.

This Job of Ours, Dept. of Health, 125 Worth St., New York, N. Y. An inside house organ, Dr. Rice talking quite conversationally to over 2,500 people who are the Department of Health.

What's New in Traffic Safety, National Safety Council, 20 N. Wacker Drive, Chicago, Ill. *Free*. A clip sheet.

A monthly review of scientific, educational, statistical, engineering, enforcements, and other developments in the field of automobile accident prevention. Published to provide background information for news and editorial writers, and other students of traffic safety. For use with or without credit.

REPORTING

Annual report of Board of Health, Maplewood, N. J., is an effective mimeographed report (with printed cover) for a small community.

The annual report of Milbank Memorial Fund (40 Wall St., New York, N. Y.) includes a chapter on education, training of personnel, school health education, adult education.

Annual report of Sacramento, Calif., Health Dept., carries a picture of the disease "war map," a city map on which are located cases of contagious disease. One page charts the distribution of Sacramento's official health dollar which includes 9 cents for cemeteries, and 6 cents for animal welfare and pound.

The customary health officer's long, uneventful looking *review of health conditions* (introducing the report of the department) could be given accent and distinction. One device is illustrated in the annual report of Hygienic Institute, Dept. of Health for La Salle, Peru, and Oglesby, with headquarters in Peru, Ill. As in the sentence above the key word or phrase in a paragraph is shown in black or bold face type, or in italics.

"A Study of the Adequacy of Public Health Services in Birmingham and Jefferson County." Letter size, 8 pages, processed. A vivid presentation of the *inadequacy* of the public health services which have been put on less than a minimum budget of 32 cents per capita. Issued by Fact Finding and Research Committee, Dr. Paul W. Shankweiler, chairman, Birmingham Southern College.

WANTED

We hope that the wants here expressed will be met by many readers.

If you can do so conveniently, please send copies of letters to the editor of this department of the *Journal*.

Wanted: A *motion picture* dealing

with milk pasteurization for showing in small urban centers. Address: J. G. Schaeffer, sanitary engineer, Provincial Dept. of Health, Regina, Saskatchewan.

Wanted: A *test or questionnaire* to be given to teachers concerning "their knowledge of health information which should be possessed by the modern high school graduate." Address: W. C. Crawford, superintendent of schools, San Diego, Calif.

Wanted: *County fair exhibit* ideas and information sources. Address: Dr. A. E. Hill, Tyler-Smith County Health Unit, Tyler, Tex.

Wanted: *Plays* for broadcasting about adult health problems. Address: Dr. Charles F. Bolduan, Dept. of Health, New York, N. Y.

Wanted: *Health plays* to be broadcast by a group of high school girls in Bristol, Va. Address: Dr. R. G. Beachley, Health District, Abingdon, Va.

Wanted: *Exhibit materials* on present status of immunization against typhoid, scarlatina, smallpox, diphtheria, and tetanus. Address quickly: Dr. M. Fernan-Nunez, Marquette University School of Medicine, Milwaukee, Wis.

Wanted: *Reference material* on "The Relation of Health Education to the School." Address: Ruth Jubb, R.N., Mosher Jordan Hall, Ann Arbor, Mich.

Wanted: *Lantern slides* for health education. Address: Alice H. Corson, Principal, Main St. School, West Springfield, Mass.

Wanted: *Health plays* for a group of high school girls to produce over a radio station. Address: R. G. Beachley, Deputy Director of Rural Health, Abingdon, Va.

JOURNALS AND BULLETINS

"Civilizing Rural Health," by I. M. Havey. Brief review of Red Cross rural nursing service. *Am. Journal of Nursing*, 50 W. 50th St., New York, N. Y. May, 1937. *35 cents.*

"Health Teaching in a Secondary School," by M. E. Bowen. "How can health education be incorporated in the curriculum?" *Public Health Nursing*, 50 W. 50th St., New York, N. Y. May, 1937. *35 cents.*

Public Health, Michigan Department of Health, Lansing, reports "Combating Early Syphilis," by John H. Stokes, with Foreword by Dr. Parran. Reprints are offered. This article appeared first in *Readers Digest*, Pleasantville, N. Y.

"Vacation Hazards," by W. J. Myers. *American Journal of Nursing*, 50 W. 50th St., New York, N. Y., June, 1937. *35 cents.* Precautions and warnings for health workers—and other people.

BOOKS AND REPORTS

The Control of Bovine Tuberculosis in Man—*By Nathan Raw, M.D. London: Bailliere Tindall and Cox,* 1937. 128 pp. Price, $2.00.

The value of this book is that it directs attention to the danger of bovine tuberculosis to human beings chiefly through the drinking of milk from tuberculous cows and in its advocacy of pasteurization for all milk used for children, except when "certified" according to the American plan. The author has for a number of years advocated vaccination against tuberculosis. His method has never been accepted. He is using a culture which he has carried on for 30 years and is now in its 340th generation.

One would think from the author's reference to his paper published in 1903 that he was the first to recognize human and bovine tubercle bacilli as varieties of the organisms producing tuberculosis. He was present at the London Congress on Tuberculosis in 1901, and also at the Congress in America in 1908. He was at that time fully aware of the work done in America, though there is no mention of it in his book. Everyone who knows anything of the history of tuberculosis is aware that the first proof of the danger of tuberculous cattle to human beings was given in the Laboratory of the State Live Stock Sanitary Board of Pennsylvania in 1901 and 1902, and there seems to be no excuse for not recognizing this.

While the book before us contains much that is useful, as history it is incomplete and it has too many careless and inaccurate statements to be a reliable guide. MAZŸCK P. RAVENEL

Personality—Its Study and Hygiene—*By Winifred V. Richmond, Ph.D. New York: Farrar & Rinehart,* 1937. 279 pp. Price, $2.50.

If the proper study of mankind is man, the proper study of man is the human personality. So it would seem from the extensive researches that have been conducted during the past 20 years in medicine, biology, psychology, psychiatry, mental and physical hygiene, social work, education and other disciplines, all of which have been increasingly oriented toward personality as the central concept in the study of human nature in its various phases.

In this, her latest book, Dr. Winifred Richmond, a psychologist who has served at St. Elizabeths Hospital, Washington, for many years, undertakes to "outline the modern approaches to the study of personality that have so far proved most fruitful in aiding our understanding of human behavior." The book does very well. It is an orderly, well organized, clearly written and informative presentation of the main developments in this field, an epitome, as it were, of our present knowledge of the subject.

Beginning with a chapter on the historical backgrounds of personality study, it describes the various methods of study—physical, psychological, and sociological—employed in recent years, and analyzes the "fundamental psychophysical make-up" of personality in terms of intelligence, emotion, energy, habit formation, and mental mechanisms—the so-called "dynamics of personality" as hypothesized by the leading schools of psychological thought.

The remainder of the book is given over to a discussion of the maladjustments of personality—the major psychoses, the neuroses and the minor abnormalities, the study and treatment of which have thrown so much light on the functioning of the normal personality.

The point of view adopted in the treatment of the material is reflected in the author's definition of personality as "an integration—the welding together into a functioning unit of natural forces—probably in the last analysis electrical and chemical — expressing themselves now in physical and now in mental terms." The human being, she says, is not a machine but "he is like a machine in that he is an organism composed of various parts which must work together if the organism is to perform the work of which it is potentially capable." Again, in differentiating personality from character, she defines the former as a "structure" built up in the individual from birth, and ascribes to the latter moral connotations which "cannot apply to personality." While this does not tell us "exactly what human personality is," and while it suggests implications that are debatable from the philosophical angle, it does comport with the dominant orientation in the scientific study of personality today, and conveys an adequate and objective picture, more descriptive than evaluative and critical, of the status of modern investigation of this central problem, and as such should prove exceedingly valuable to all students of the subject.

PAUL O. KOMORA

Health Education Year Book: 1937–1938. *Central Council for Health Education, 1, Thornhaugh St., Russell Square, W.C. 1, London, England.* 5/6 d.

We have nothing like it in this country, this *Year Book* picturing the health education organizations, the health education activities, and the educational materials of the United Kingdom. The inclusiveness of the information may be seen by this selection from the list of "health associations": Anti-Noise League, Boy Scouts Association, British Medical Association, Central Association of Mental Welfare, Dental Board of the United Kingdom, Eugenics Society, Garden Cities and Town Planning Association, Health and Cleanliness Council, Industrial Health Education Society, Jewish Health Organization of Great Britain, League of Nations Health Organization, National Adult School Union, People's League of Health, Royal Institute of Public Health, Sanitary Inspectors' Association, Town Planning Institute, Welsh Association of Physical Education, and Youth Hostels Association, a total of 75 organizations being listed and described.

In one section the main facts about the health associations are summarized. Then there are lists of journals, books, pamphlets, plays, and other printed matter. Another section describes the health education use of the Empire Marketing Board poster frames, and lists the posters, with detailed information, issued by the health associations.

Other sections tell about exhibits available, about the lecture services of the associations, and the offerings of motion pictures, projectors, and lantern slides. Every section includes introductory information and practical suggestions.

The information is inclusive, not selective, without any attempt at evaluation. Nor is there any suggestion of a program for the use of the widely diverse materials mentioned in the lists. Any way, all of that is another job, and probably a perennial one there, as it is here.

We do not have accessible such information as to health education sources

in the United States and Canada. We doubt that as many and as varied materials and services are available west of the Atlantic. And surely we have no body comparable to the Central Council for Health Education. This reviewer hopes that many readers will be able to examine the *Year Book*.

EVART G. ROUTZAHN

Fundamentals Relating to the Design and Operation of Exhaust Systems—(Pre. Ed.) *New York: American Standards Association, 29 W. 39th St.*, 1936. 28 pp. Price, $.40.

These specifications are part of a general project known as the Safety Code for Exhaust Systems developed under the administrative leadership of the International Association of Industrial Accident Boards and Commissions. The chairman of the Sub-Committee is Theodore Hatch of the Industrial Hygiene Division, New York State Department of Labor.

With a code number for each item, the report includes definitions, plant layout, and building construction, exhaust hoods (dispersion of atmospheric impurities, control of air motion, hood design), exhaust piping, the air-cleaning plant, the exhaust fan, construction and maintenance, and an Appendix of 19 references. Tables, diagrams, and formulae are included. This appears to be a very laudable attempt to standardize the features discussed, and has been prepared by a committee of experts.

EMERY R. HAYHURST

The Little Things in Life: The Vitamins, Hormones, and Other Minute Essentials for Health—*By Barnett Sure, Ph.D. New York: Appleton-Century*, 1937. 340 pp. Price, $2.50.

The sanitarian who is looking for a comprehensive and generally authoritative review of the newest knowledge of nutrition will find it in this well printed book. The text was prepared for the layman by a professor of agricultural chemistry who has made some notable contributions to the science of nutrition, but the general reader may find that the material in it is not quite as "non-technical" as the author intended.

Most of the chapters are devoted to interesting accounts of the history, nature, availability, functions, and uses of the important food substances now known as vitamins, but there are also good chapters on allergy, ferments and digestion, and the ductless glands. Occasionally, the author has a tendency to exaggerate the influence of diet on human affairs, as in his inferences that cancer may be due to faulty nutrition, but on the whole the book is a reliable, readable, and valuable text on a significant subject with which every public health worker should be thoroughly familiar.

JAMES A. TOBEY

Childless: A Study of Sterility, Its Causes and Treatment—*By Sam Gordon Berkow. New York: Lee Furman*, 1937. 307 pp. Price, $3.00.

The author of this very interesting and instructive book has performed a real service in bringing together a wealth of material upon a little understood and much maligned subject. Dr. Berkow has marshalled the available scientific facts of anatomy, physiology, and biochemistry and indicated where the maladjustments in the procreative process are liable to occur. He has pointed out possibilities of prevention and given approved methods of treatment.

After reading this volume one is convinced that childlessness is not merely a question of "unwillingness to bear children" but that it is a complex problem in many cases with deep sociological, psychological, and physiological roots. The most exhaustive and painstaking investigation is neces-

sary frequently to determine just where the difficulty lies. There is no room for legerdemain in the handling of difficult and obscure cases. Every facility at the command of the modern obstetrician and gynecologist must be brought to bear upon the solution of the problem of childlessness. Here is a book that states the problem clearly, although it does not solve it completely. With the declining birth rate and a yearning in many homes for babies instead of lap-dogs this book should meet with ready reception on the part of medical profession and laity alike.

RICHARD A. BOLT

Guiding Your Life: With Psychology as a Key—*By Josephine A. Jackson, M.D. New York: Appleton-Century,* 1937. 352 pp. Price, $2.50.

Here is popular psychology for each and all of the seven ages of man, presented by the author of the highly successful book of a few years ago, *Outwitting Our Nerves.* It is not profound, but it is practical, homely guidance, offered in a readable style to all those who need mental hygiene. And who does not? JAMES A. TOBEY

Grundlagen Methoden und Ziele der Hygiene. Eine Einführung für Mediziner und Naturwissenschaftler, Volkswirtschaftler und Techniker—*Von Prof. Dr. Werner Kollath. Leipzig: Hirzel,* 1937. 508 pp., 39 figs. Price, R.M. 20.

This is a comprehensive, very up-to-date, elementary treatise on the subject of hygiene in all of its varied aspects. It is especially helpful in indicating the basic relations of hygiene to the border lines between physics and biology in the fields of atomic physics and radiant energy; to the border lines between chemistry and biology in the field of the content, direction, and causes of energetics; and to the border lines between medicine and biology with reference to the intimate organization of the living substances and the periodicity of vital phenomena. Among the subjects treated are nutrition, growth, climate, clothing, personal hygiene; sanitation of dwellings and cities, heating, ventilation, cleaning, illumination, sanitation of the soil; water supplies, sewage disposal; sources, qualities, distribution, conservation, and preparation of vegetable and animal foods, alcoholic and narcotic drinks; dangers of restricted nutrition; vital statistics, health insurance, and race culture; communicable diseases and immunity. CHARLES A. KOFOID

Parent-Teacher Publicity — *By Clarice Wade. Washington: National Congress of Parents and Teachers,* 1936. 83 pp. Price, paper $.25; cloth $.50.

This is a text of instructions to Parent-Teacher Associations as to how they may get publicity. It discusses publicity channels, such as periodicals, radio, posters, news bulletins, and exhibits; the press and publicity: suggestions on news writing; publicity relationships; and aids to efficiency.

It has in it many valuable suggestions to groups desiring publicity. Local and other health committees will find in it much worth while material.

CHARLES H. KEENE

Health Protection of Welders—*By The Industrial Health Section of the Metropolitan Life Insurance Company, New York.* 27 pp., ill. Free.

Welding, burning, and "cutting" of metals and minerals by the gas or electric torch, also "metallization" have become so enormously important in modern industry and offer so many hazards to life and health that this unusually complete bulletin is quite opportune.

Temperatures from gas flames to 6,000° F., electric arcs to 10,000° F., and the "electric atomic hydrogran arc"

so high as to melt all metals and even quartz, produce not only dangerous radiations but act upon the atmosphere itself to which may accrue the products of the gases used, the metals and minerals worked upon, of coatings of electrodes, flux rods, etc. Even chest pictures closely resembling silicosis may occur in welders. There is also the occasional exhaustion of oxygen in the air in unventilated spaces. The effects, preventive measures, and in some instances, treatment of the afflictions produced are briefly considered.

EMERY R. HAYHURST

Wholesome Living Series—Health and Happiness—*5 vols. (ill.). By Jesse Feiring Williams, M.D., and Theresa Dansdill, A.M. New York: Benjamin H. Sanborn and Co.*, 1935–6. *Health and Happiness*, 106 pp., $.64; *Health and the Rules*, $.64; *Health and Control*, $.68; *Health and Service*, $.72; *Health and Ideals*, $.80.

This is a helpful series for the classroom or health teacher to add to her reference library. The field of health is comprehensively covered, yet much of the material in the four volumes has been taken from books, magazines, and posters heretofore published, and so the investigator of health teaching material too often meets excerpts of material she knows in its original form.

ANNA B. TOWSE

Man in a Chemical World—*By A. Cressy Morrison. New York: Scribner*, 1937. 292 pp. Price, $3.00.

"This book is intended to be educational, from the cultural as well as the utilitarian points of view. Its object is to impress the man in the street with the fact that the chemical industries of the United States render a service that touches practically every activity in which he engages. In fact, it is the main purpose of the book to awaken him to the realization that he is utterly dependent upon these industries not only for the necessities and luxuries of life, but also for his very existence." No better statement concerning the object of this book can be made than is found in the foreword.

The volume is the outgrowth of the celebration of the 300th anniversary of the birth of chemical industry in the United States. It is vouched for by the highest authorities in the chemical world and credit is given to "hundreds of leading industrialists" for reviewing the material presented.

It is a remarkable story and one which professional men as well as laymen can read with advantage. It touches public health only at certain points, as in Chapter 3, "Keeping Well," so that an extended review is not called for in our *Journal*. Indeed to produce such a review would be difficult, since the book itself has necessarily been condensed. Prepared for lay readers, is does not go into detail but in a most readable and interesting fashion presents to us the wonders of modern chemistry and shows to what an enormous extent we are indebted to this wonderful science. It properly begins with the chapter "Nature Points the Way," showing that nature is the greatest chemist of all, and the succeeding chapters each take up some well known field in which chemistry is predominant.

The book is well printed, exceptionally free from errors, and illustrated with black and white cuts. It can be highly commended for general education. MAZŸCK P. RAVENEL

Trauma and Disease—*Edited by Leopold Brahdy, M.D. and Samuel Kahn, M.D. Philadelphia: Lea and Febiger*, 1937. 613 pp. Price, $7.50.

With an imposing list of 22 additional authors, Drs. Brahdy and Kahn

present a symposium on the relations between trauma and diseases, each writer contributing according to his knowledge in his individual field. The book purports "to present the accumulated knowledge concerning the relationship of a single trauma to disease, to indicate the limitations of this knowledge, and to develop the underlying principles on which, in any given case, the medical opinion should be based."

The first chapter contains a discussion of trauma in the etiology of disease, the editors having divided diseases into three groups, according to trauma relationship, as follows: (1) "Those which are practically always the direct result of trauma—fractures, lacerations, etc. (2) Those which are never the result of a single trauma—such as measles. (3) Those which usually develop without trauma, but in which trauma *may* be a causative factor—angina pectoris, kidney abscess, exophthalmic goiter, etc."

The second chapter, Trauma and Heart Disease, by Drs. Paul D. White and R. Earle Glendy, carrying out the specific intent of the book is followed by successive chapters on the relationship of trauma to other conditions and diseases. All are well written, with clarity, and with a careful exposition of the respective subjects.

Although the volume does not attempt to approach the subject of Trauma and Disease from the standpoint of the medico-legal expert it would have been extremely valuable and useful to include more references to court decisions than are cited, with notations to guide the practitioner in his "everyday" consideration in matters of this sort. The authors are qualified to discuss the determinate and indeterminate factors in causal relationship, and although not stressing the medico-legal phases, they might have shown in greater detail the application of their knowledge to important cases with respect to the interpretation of the courts.

Each chapter reflects the ingenuity of the author in presenting his material and to the editors must go the credit for its arrangement, especially the bibliographies which are cited in extenso following the major sub-divisions within the respective chapters.

The reader is aware of general and adequate coverage of the subject of Trauma and Disease. The data presented should stimulate further study and closer attention to the details in establishing causal relationship.

A place has been reserved in the physician's library for this type of book for many years. Not only in content but in make-up is this particular book deserving of this reservation.

BERNARD S. COLEMAN

Public Health and Social Problems in the United States of America—*League of Nations Quarterly Bulletin of the Health Organization.* Vol. V, No. 4 (Dec.), 1936. 152 pp. Single number 65 cents.*

This thoughtful and constructive report on American health and social problems reflects statesmanship of the highest order. A group of distinguished public health officers and professors of hygiene from Europe participated in 1935 in a collective study tour in the United States arranged by the Health Organization of the League of Nations and the U. S. Public Health Service. The group was accompanied by Dr. F. G. Boudreau, member of the Health Section, and by Dr. J. O. Dean of the Public Health Service.

The introduction sketches the general background of natural, economic, and social conditions which determine the

* This bulletin also contains: Health Indices, a study of objective indices of health in relation to environment and sanitation by K. Stouman and I. S. Falk, and a report by Dr. A. Stampar on his missions to China.

character and extent of the health problems under the headings: the physical heritage and the advance of the machine age, the biological inheritance, and the social heritage. Attention is directed to the gain in expectation of life, to mortality rates, to the extent of illness and of physical and mental defects and non-disabling diseases, and to the problem of providing satisfactory medical care.

An account of public health work, as seen in federal health agencies, state, municipal and rural health organizations, gives some of the outstanding impressions of the significance of the work as well as a description of administrative features. The value of efforts to secure coördination of health services is stressed. Attention paid to cancer and venereal diseases is considered as an indication that the program of modern health departments in America is being reformed in accordance with changes in the health problems; now that so much progress has been made in the protection of child life, more attention is being paid to adult hygiene. Again—

> Public health education is a major activity in this department as regards communicable diseases, child and adult hygiene, and tuberculosis. Pamphlets, lectures, exhibits, films, the radio, and all other means are fully and intelligently used. Public health nursing is a main reliance in this field.

The group was also struck by the tendency for decentralization in the health departments of large cities, and by the powerful means through the health center of bringing about coöperation between the multitude of health and social agencies. Another coördinating agency described is the health council or health federation.

> Such bodies . . . should give to their members a broader view of the community's health and social problems, as well as more detailed knowledge of the facilities which exist to deal with them; and their value as agencies for health education must be very high.

Measures taken to initiate and carry out a national housing policy, a matter of only recent concern, are briefly described.

> Finally, there is the complex question of city planning to meet modern conditions—a problem which is far from being solved. We have referred to the decentralization of industry and the planned use of land—two factors which concern city planning in its wider aspects. In fact, housing policy is so clearly related to all aspects of modern civilisation that progress in its elaboration cannot be more rapid than the adaptation of technology to social progress. The lack of such adaptation has brought about many social maladjustments in the form of serious social and health problems which it is the duty of society to deal with in an enlightened way; and not the least of these maladjustments is the housing problem.

Among other subjects discussed are the Tennessee Valley Authority, the Promotion of Social Security, and the Teaching of Preventive Medicine. This review falls far short of doing justice to this enlightening appraisal. After reviewing the facts, the authors discuss the spirit which animates the efforts, the evolution which is taking place and the lessons to be learned.

> . . . Effort in favour of public health cannot be really fruitful unless it is accompanied by parallel and general improvement in social welfare. It follows that progress in the solution of health problems must necessarily proceed at the same pace as progress in the economic, agricultural, and industrial fields.
>
> . . . Many more pertinent facts might be mentioned to demonstrate the existence in the United States of this transforming process of evolution guided by a coördinated programme of planned economy. In order that this evolution may develop and result in the improvement in the general welfare which is so ardently desired, it is indispensable that all agencies and elements whose participation is necessary must be well fitted for the tasks entrusted to them. The conception of public health work must not be restricted to its former limits. It must broaden out beyond the scope of preventive medicine to advance further and further into the field of social protection in the largest sense of the words. In this connection, a new orientation may be seen in the training given by certain schools of medicine and hygiene, which place special

emphasis in their programmes of study, not only on the teaching of preventive medicine, but also on so-called social medicine and sociology. By efforts to place the future physician in contact, not only with the patient, but also with the environment in which the patient lives, he is made to take into consideration the methods and means which must be adopted to assure the defence, assistance, and security of the patient and his family against the vicissitudes which may endanger his life and his work.

It is along the path which has been cleared by these schools that more rapid and general progress must be made if that enlightened support is to be obtained which is so vital for the solution of modern problems and for the success of the work undertaken to bring about sanitary, social, and economic reconstruction.

IRA V. HISCOCK

Social Welfare: A List of Subject Headings in Social Work and Public Welfare—*Special Libraries Association, 345 Hudson Street, New York, N. Y.* 64 pp. planographed. Price, $1.00.

Those who need to keep abreast of trends in social work will find a helpful aid in this new publication of the Special Libraries Association. A Committee of the Social Sciences Group chose the terms from lists actually in use by libraries and social agencies. Specialists in both fields were consulted. The list is intended mainly for those who handle collections of books and pamphlets in social work, but it serves also as a conservative but forward looking guide to the use of terms, including a number of the field of public health.

I. L. TOWNER

Report of The Hospital Survey for New York—*Presented to the Survey Committee by its Study Committee. New York: United Hospital Fund,* 1937. Vol. II, 1246 pp. Price, $2.75.

Diminished financial support of essential community services is a prevalent result of severe economic disturbances. The individuals and groups who normally provide funds find themselves during depression periods unable to do so in an equal measure, with a consequent stimulation of surveys and appraisals, in order to determine what is most essential and what must under all circumstances receive continued support.

The Hospital Survey for New York is intended to be "A description of the Institutions and Agencies concerned with the Organized Care of the Sick in the New York Metropolitan Area, with Analysis of Their Use and Cost, and Consideration of Plans for the Future."

This report was sponsored by a general committee of 100 outstanding citizens of Metropolitan New York. A Study Committee of 8, Dr. George Vincent, Chairman, included prominent leaders in American medicine and hospital administration. The activities of the Survey Staff, Dr. Haven Emerson, Director, were supplemented by qualified collaborating individual authors who wrote important chapters on subjects most familiar to them.

The objective was not only the analysis of the use of over 850 institutions and agencies in Metropolitan New York by an estimated population of over 10 million people and the cost, but also to lay down principles and objectives which will best render hospital service to an estimated population of 18 million, as prophesied by the year 1960. This is, indeed, commendable long-range planning, and the reviewer is in complete accord with the laudable statement in the preface that "Just as our complex transportation services will be ultimately succeeded by a unified system suited to the requirements of a predictable future size of the population, so the organized care of the sick a generation hence will be best provided for by an orderly growth and coördination of present voluntary and municipal facilities to meet the

expanding knowledge and skills of the medical sciences."

Existing institutions for the care of the sick and dispensaries in the various boroughs of New York are listed and classified by type of control. Chapters are devoted to the characteristics of the population, hospitals and their services, out-patient service, nursing care, medical social service, convalescent care, the care of the chronic sick, etc. A very important chapter is devoted to necessary essentials for good care of the hospital patient.

Among the many valuable conclusions and recommendations are the following:

1. The creation of a Permanent Planning Group to deal with the question of major expenditures, particularly in relation to hospital expansion.
2. Continuance of dual system of care of sick poor both in Governmental and voluntary hospitals, the latter to be reimbursed from tax funds.
3. Organized medical domiciliary care, as an extension of hospital out-patient service.
4. A revision of policies to provide for admission to general hospitals of those suffering from mental disease, tuberculosis, gonorrhea, and syphilis.
5. The discontinuance of the erection in New York City of general hospitals of less than 200 beds.
6. Adjustment of nursing hours to meet the difficult needs of the acutely ill.
7. Organization of out-patient departments and dispensaries as a part of general hospitals.
8. Improvement in facilities for care of the chronic sick, the convalescent, and organized care of sick in homes, including nursing care.
9. Extension of provisions for adequate medical social service.
10. Further provision of facilities for the treatment of cancer, heart disease, and diabetes, and for dental care.

This report is a well written, thorough analysis and appraisal of existing community resources in the field covered by the survey. Faults of the past are pointed out, and logical conclusions and sound recommendations presented by those qualified to analyze and recommend. Certainly a community in which there is expended approximately 50 million dollars a year for hospital care should benefit from the emphasis placed on better planning, better interrelation, and extension of needed facilities.

CHARLES F. WILINSKY

School Health Problems — *By Laurence B. Chenoweth and Theodore K. Selkirk. New York: Crofts,* 1937. 387 pp. Price, $3.00.

This is designed "to acquaint students of education, teachers in service, and others interested, with the broad general nature of health problems in schools." Not for a number of years has an intensive effort been made to cover the health activities of the school program. After discussing at length numerous factors bearing upon growth, including a chapter on malnutrition, it takes up various phases of the physical examinations of school children, the control of communicable disease, lighting, acoustics, special classes for handicapped children, and tuberculosis at the school age. It discusses mental hygiene as related to school problems, and considers briefly the relation of physical education to the health of school children, and the accident problem.

The last chapter gives an excellent discussion and outline of school health administration. This is a special contribution by Richard A. Bolt, M.D. It includes a discussion in outline of the arguments for different sources of control of school health work, of its scope, and of the legal background of the public health law.

It is a worth while addition to the school and public health literature.

CHARLES H. KEENE

The Mind of Man: The Story of Man's Conquest of Mental Illness —*By Walter Bromberg. New York: Harper,* 1937. 323 pp. Price, $3.50.

While this book is advertised as

being "a work of scientific authority for the layman," it will prove of undoubted interest to physicians. The author gives a fascinating picture of the rise and fall of the various modes of treatment of mental illness from those in vogue 7,000 years ago up to the present. One cannot but note that the space given to the psychoanalytic schools greatly overshadows that devoted to the psychobiological and mental hygiene points of view, which deserve greater emphasis. There is a fairly comprehensive bibliography, arranged chronologically, in several sections, to correspond with the historical approach.

The book reads easily. The story of the progress of mental healing from the days of belief in magic, through the domination of religion and faith-healing up to its emergence as psychiatry and psychotherapy, is traced in consistent and very attractive style. The dynamic presentation, showing the correlation of varying viewpoints, is especially satisfying.

The historical account is the most valuable contribution of the book. The critical interpretation of some of the present-day therapy is debatable. That insulin brings about prompt remission in a large proportion of cases of dementia praecox is still unproved. Only further experimentation can answer this and similar questions.

The book is highly recommended for its historical content. It should be read by all physicians, some of whom may be surprised to find that their conception of insanity belongs to the Middle Ages. RUTH E. FAIRBANK

BOOKS RECEIVED

CLINICAL PARASITOLOGY. By Charles Franklin Craig, M.D., and Ernest Carroll Faust, Ph.D. Philadelphia: Lea & Febiger, 1937. 733 pp. Price, $6.50.

CLINICAL PSYCHOLOGY. A Handbook of Children's Behavior Problems. By C. M. Louttit. Edited by Gardner Murphy. New York: Harper, 1936. 695 pp. Price, $3.50.

PRINCIPLES AND PRACTICE OF PUBLIC HEALTH DENTISTRY. By J. A. Salzmann, D.D.S. Foreword by Alfred Walker, D.D.S. Boston: Stratford Co., 1937. 584 pp. Price, $4.00.

FEEDING BEHAVIOR OF INFANTS. A Pediatric Approach to Mental Hygiene of Early Life. By Arnold Gesell, Ph.D., M.D., and Frances Ilg, M.D. Philadelphia: Lippincott, 1937. 201 pp. Price, $4.50.

THE COST OF ADEQUATE MEDICAL CARE. Medical Economics Series. By Samuel Bradbury, M.D. Edited by Michael M. Davis. Chicago: University of Chicago Press, 1937. 86 pp. Price, $1.00.

HEALTH UNDER THE "EL." The Story of the Bellevue Yorkville Health Demonstration in Mid-Town New York. By C.-E. A. Winslow and Savel Zimand. New York: Harper, 1937. 203 pp. Price, $2.25.

TUBERCULOSIS. A Book of Practical Knowledge to Guide the General Practitioner of Medicine. By Lawrence F. Flick, M.D., LL.D. Philadelphia: Published by the author, 1937. 330 pp. Price, $3.00.

PRINCIPLES AND PRACTICE OF CLINICAL PSYCHIATRY. By Morris Braude, M.D. Philadelphia: Blakiston, 1937. 382 pp. Price, $3.50.

ANATOMY AND PHYSIOLOGY OF PHYSICAL TRAINING. By Major R. W. Galloway, D.S.O. Introduction by E. P. Cathcart, LL.D., M.D. Baltimore: Wood, 1937. 182 pp. Price, $2.50.

PRACTICAL METHODS IN THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES. By David Lees. Edited and revised by Robert Lees, M.B. (3rd ed.) Baltimore: Wood, 1937. 603 pp. Price, $5.00.

THE PSYCHOLOGY OF THE UNADJUSTED SCHOOL CHILD. By John B. Morgan, Ph.D. (rev. ed.) New York: Macmillan, 1937. 339 pp. Price, $2.25.

SHADOW ON THE LAND: SYPHILIS. By Thomas Parran, M.D. New York: Reynal & Hitchcock, 1937. 330 pp., ill. Price, $2.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Typhoid Flavored Cream Puffs—Another instance of bakery cream puffs being contaminated by a typhoid carrier and causing an outbreak. What is being done about this hazard in San Francisco is appended to the news item.

ANON. Typhoid Outbreak Traced to a Sporadic Carrier without Clinical History of the Disease. Pub. Health Rep. 52, 28:929 (July 9), 1937.

Observations on Many Matters—For the health worker with his nose close to the grindstone of a routine administrative job, this brief discussion of the larger objectives of public health should be required reading. Being a series of summaries, the report omits much, but what is included proves most stimulating.

BOUDREAU, F. G., *et al.* New Health Frontiers. Proceedings of the Fifteenth Annual Conference of the Milbank Memorial Fund, 1937.

Dangers of Trichinosis—Garbage-fed hogs have trichinae 3 to 5 times as frequently as others. Garbage feeding, as ordinarily carried on, is objectionable, and must somehow be regulated.

HALL, M. C. The Rôle of the Garbage-fed Hog in Production of Human Trichinosis. Pub. Health Rep. 52, 27:873 (July 2), 1937.

For Men—How to shave has been put to a scientific study. It becomes quite a chore when properly performed, but the authors say it's worth the trouble.

HOLLANDER, I., and CASSELMAN, E. J. Factors Involved in Satisfactory Shaving. J.A.M.A. 109, 2:95 (July 10), 1937.

Making Vaccines—How typhoid vaccine is made in the Army Medical School laboratory is told in detail and with some excellent photographs. The latter should stimulate sanitarians to want to do as well pictorially by some of their own laboratory or field services.

HOLT, R. L., and HITCHINS, A. P. Typhoid Vaccine: The Technique of Its Preparation at the Army Medical School. Pub. Health Rep. 52, 26:829 (June 25), 1937.

Coloring for Foods—Written for the educated laity, this paper on the use and abuse of coloring matter in food will prove interesting to those sanitarians who know little about the food and drug branch of public hygiene.

LYTHGOE, H. C. The Coloring of Food: Its Use and Abuse. Sci. Month. p. 119 (Aug.), 1937.

About Tuberculosis Control—A fine thumb-nail sketch of the growth of the tuberculosis program and what it is all about. Two thousand years of clinic, 200 of laboratory, and 50 of cultivating the field: truly a stimulating conception.

LONG, E. R. The Clinic, The Laboratory, and The Field. Am. Rev. Tuberc. 36, 1:1 (July), 1937.

When Birth and Death Rates Meet—This should be required reading for all alarm-viewers and whither-are-we-drifting pointers. In it the suggestion is made that a stationary population, which probably will be reached in the latter half of this century, may be a good thing. The reasons for the assumption are discussed.

LORIMER, F. The Significance of Imminent Population Changes in the United States. Milbank Quart. 15, 3:207 (July), 1937.

More About Syphilis Control—Beginning with a pat, 60 year old quotation from Sims, what we know about syphilis is briefly stated, and a plan for its control is outlined. Trained public officers, control laws, premarital medical certification, diagnostic and treatment facilities, educational programs, are all important considerations. Osler is quoted to excellent effect at the close.

PARRAN, T. Control of Syphilis. J.A.M.A. 109, 3:205 (July 17), 1937.

In England Health Officers Are Concerned with Housing—Among the many efforts to better the health of the people, first place should be given to the campaign to improve the housing of the working classes; so begins an interesting British discussion which causes one to wonder why American sanitarians seem so free from all responsibility in matter of decent housing.

PEARSON, T. The Contribution of Recent Housing Legislation to Public Health. J. State Med. 45, 7:397 (July), 1937.

Scope of Nursing Visits—Unselected samples of nursing records of 128 families with children revealed that half had children in more than one age group. More use might be made of the home visit to extend service to other children needing health supervision. Although numbers of visits per family varied, the analysis of health needs showed no significant differences.

RANDALL, M. G. Family Composition Used in the Analysis of Home Visits by Public Health Nurses. Milbank Quart. 15, 3:275 (July), 1937.

British Obstetrical Services—This discussion of the importance of the midwife in the British program for improving maternal health will provide stimulating reading for those American child hygienists who still adopt the ostrich's method of ignoring the existence of midwives here.

SAVAGE, W. G., and NASH, E. H. T. The Future of Obstetric Practice. Pub. Health. 50, 10:317 (July), 1937.

For Safer Motherhood—The main beneficiary of good prenatal care is the offspring, says the author of this provocative discussion of how adequate antepartum care may be provided for the expectant mothers of the community. Nursing care cannot be a substitute for medical attention, is the conclusion of the paper.

TAMIS, A. B., and CLAHR, J. Antepartum Care. J.A.M.A. 109, 3:195 (July 17), 1937.

Previable Termination of Pregnancy—In a sample group of New York women, it was found that of every 100 pregnancies, 83 resulted in live births, 2.7 in stillbirths, and 14.5 in abortions. This is a lower abortion percentage than was reported among women attending birth control clinics.

WIEHL, D. G., and BERRY, K. Pregnancy Wastage in New York City. Milbank Quart. 15, 3:229 (July), 1937.

ASSOCIATION NEWS

NEWS AND NOTES CONCERNING THE 66th ANNUAL MEETING NEW YORK CITY

OCTOBER 5–8

TO make some attempt at chronological order, we devote some space first to those things to which attention should be given now, in advance of the convention. Other items cover information as to what awaits you in New York.

YOUR HOTEL

YOU will be comfortable at any of the hotels to be used as the scene of the meeting—the Pennsylvania, the New Yorker, or the McAlpin. Elsewhere in this *Journal* is published a reservation blank. If you have not already done so, make your reservation now.

YOUR CONTRIBUTION TO THE MOTION PICTURE PROGRAM

MOVIES, both popular and professional, will be shown at hourly intervals during all 4 days of the convention. A miniature movie theatre will be located on the Mezzanine floor of the Hotel Pennsylvania.

It is hoped that an informed representative will be present for each showing of every film. In addition, each sponsor of a film is requested to provide a quantity of mimeographed sheets which will give a synopsis of the picture; any interesting facts as to its production or the use made of it; the length, time, etc.; whether or not the picture is available for loan, rental, or sale, and where.

An invitation is extended to owners of movies, especially those of 1936–1937 production, to offer their pictures for showing at the convention.

Please send full information as to the subject matter, and the size of the film. Quick action will secure the better hours for projection.

If possible each picture will be shown at the same hour on 2, 3, or 4 days. Please make a first and second choice of days and hours (9:00, 10:00, 11:00, etc.), the final choice resting with the committee in charge.

Address correspondence to Evart G. Routzahn, 130 East 22nd St., New York, N. Y.

YOUR CONTRIBUTION TO HEALTH EDUCATION AND PUBLICITY HEADQUARTERS

EVART G. ROUTZAHN will, as usual, conduct Health Education and Publicity Headquarters. He will have on display examples of all types of health education material gathered from near and far.

Invitations are issued to all who would like to make contributions to this impressive exhibit to communicate with Mr. Routzahn at once, at 130 East 22nd Street, New York, N. Y.

HEALTH CENTER OPENING MONDAY, OCTOBER 4

HEALTH Commissioner John L. Rice of New York City has arranged a pre-convention feature for Monday, October 4, to acquaint delegates with district health center development in New York City.

Dedication ceremonies of the Central Harlem Health Center in Manhattan's densely populated Negro district will be held at a luncheon meeting in the new building, 2238 Fifth Avenue, Monday noon, prior to convention sessions. New York's Mayor, Fiorello H. LaGuardia, and Commissioner Rice will outline the city's district health program which is launching 8 new city-owned, city-built health center buildings this year. A.P.H.A. leaders will be invited to participate in the ceremonies, and the Harlem building and its services will be open for inspection by delegates through convention week.

New York City's district health center program provides for the organization of 30 health center districts by 1945, to serve the city's approximately 7,500,000 people living in an area of about 300 square miles. In the 30 district plan, each administrative unit, under a full-time district health officer, would serve a population area of about 250,000. According to Dr. Rice, the district program is based on detailed studies by experts in preventive medicine and public health who hold that only such a program can bring the services of the health department of a large metropolis close to the people.

District health administration is an administrative device which should make possible the achievement of two objectives: first, to bring health services closer to the people who need them and thereby render more effective service; second, to discover local needs which tend to be concealed in statistics for an entire borough or city.

The Central Harlem building will be the 7th new district health center to be opened in New York's Boroughs of Manhattan, Brooklyn, Bronx, and Richmond this year. The 8th unit will be opened in the Borough of Queens on October 14. Construction plans are under way for additional units in the program.

New York's district health program also provides for coöperation between the Department of Health and the 5 large medical schools operating in the city, for training physicians, nurses, and other public health workers in preventive medicine and public health practice. Five of the new district buildings will be health and teaching centers affiliated with the medical schools.

More than $2,000,000 in loans and grants obtained from the Federal Emergency Administration of Public Works, made possible the construction and equipment of the first 8 new health center buildings, which average $250,000 in cost.

At present, New York City has 20 health districts organized with district medical health officers in charge of each district health center. Some of these centers are housed in temporary quarters. The personnel in the district program is all under Civil Service.

THE HEALTH EDUCATION INSTITUTE OCTOBER 3, 4, AND 5

PLANS are rapidly progressing for the Fifth Health Education Institute, to be conducted by a committee of the Public Health Education Section and sponsored by the Association. The previous Institutes have been highly successful and practical. The program of the Fifth Institute aims to give the major objectives and principles of community health education, and to provide information about the various technics involved and the application of these methods in specific public health activities.

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Looking North from the Rockefeller Center Observatory

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Night View from Rockefeller Center Observatory Looking South

The Institute will use a combination of the discussion and lecture methods adapted to group work. Recognizing the varied interests of members, the schedule is planned to give opportunity for those primarily interested in securing more information regarding a specific topic to participate in round table programs on this subject. Hence, there will really be a series of institutes running at the same time. General sessions are provided on the first day of the Institute for a consideration by all at the outset of the psychological principles of health education, and at the end of the Institute on the rounded community health program. The faculty has been carefully selected from leaders in this field who have had long practical experience in doing the job. An added feature will be the assembly by leaders in a unique manner of illustrative material, the use of professional exhibits, and of Mr. Routzahn's public health education and publicity exhibit for laboratory purposes. Each leader will have one or more consulting specialists as assistants.

The subjects of the round tables with the names of leaders follow:

Sunday, October 3, 10:00 A.M. General Session

a. Organization of Institute. Ira V. Hiscock, Professor of Public Health, Yale University, New Haven, Conn.

b. Psychological Principles of Health Education.

The first round tables will immediately follow this general session.

Subjects and Leaders

Personal and Group Contacts
Mary Connolly, Director of Health Education, Detroit Department of Health

Newspapers
Mary Swain Routzahn, Consultant in Social Work Interpretation, Russell Sage Foundation, New York, N. Y.

Meetings and Public Speaking
Philip P. Jacobs, Ph.D., Director of Publications and Extension, National Tuberculosis Association, New York, N. Y.

Printed Matter
Bertrand Brown, Consultant in Public Health Education, New York, N. Y.

Radio
Florence Marvyne Bauer, Author of Health Plays and Radio Dramas

Exhibits
Homer N. Calver, Secretary and Director, Committee on American Museum of Hygiene, American Public Health Association

Isotype and Campaign Methods (each a single session)
H. E. Kleinschmidt, M.D., Director of Public Health Training, Department of Health, New York, N. Y.

Moving Pictures
Arthur L. Gale, Editor, Movie Makers, New York, N. Y.

School, Elementary
Ruth E. Grout, Director of Health Education Study, Cattaraugus County School Health Service, Olean, N. Y.

School, Secondary
C. E. Turner, Dr.P.H., Professor of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

While it is expected that members will select one major subject for regular attendance, the sessions will be so arranged that those who are primarily interested in exhibits may attend the short sessions dealing with the Isotype Methods, and persons interested in contact methods and meetings may attend the session on Campaign Methods. The introductory sessions on personal and group contacts, exhibits and school will be open to members registering for the other sessions which begin Monday morning. One of the sessions on moving pictures will feature school films, and provision will be made for the school groups to attend. A Monday luncheon is being arranged for discussion of the Health Education Coördinator.

At the final general session, brief summaries of the various round tables will be presented by specialists, and the Institute will conclude with an address on the community health education program as a whole by Dr. George C.

© Keystone View Co.

An Unusual Picture of Lower Manhattan Taken from Brooklyn Bridge

New York Public Library

Art Service Project WPA

Board of Health Building, New York, N. Y.

Williamsburg-Greenpoint Health Center, Brooklyn, N. Y. Opened July 27, 1937

Ruhland, Commissioner of Health, Washington, D. C. All of the sessions will be held in the Hotel New Yorker.

Those wishing to register for the Health Education Institute should do so at once. The fee is $3 for members of the Association, and $6 for non-members. Registration forms may be obtained from the Association office.

THE SCIENTIFIC EXHIBITS

ONE of the most notable features of the Annual Meeting which has been given tremendous stimulus in the past few years by the interest of members themselves is the Scientific Exhibit. The one developing for the New York City meeting is especially interesting. Applications are at hand covering a multitude of subjects, all of concern to the public health world at the present time.

Syphilis is well represented from many angles, with offers of exhibits from individuals and many agencies, including state health departments and the U. S. Public Health Service.

Among those to which space has already been allotted by the Scientific Exhibits Committee are:

Virus Diseases
Rockefeller Institute for Medical Research and Rockefeller Foundation

Syphilis
Group exhibit by the United States Public Health Service, American Social Hygiene Association and other agencies

Mechanical Nostrums
American Medical Association

Connecticut State Cancer Program

Activities of Metropolitan Health Department of Vancouver

Indiana State Board of Health Dental Program

Pneumonia Control
Drs. Cecil, Armstrong, and Dublin

Tuberculosis in Children
Queensboro Tuberculosis and Health Association

Eye Defects
National Society for the Prevention of Blindness

Health and Safety
Boy Scouts of America

Prevention of Frost Bite
Dr. Leopold Brahdy

Dental Diseases in Indigent Children of New York City
Murry & Leonie Guggenheim Foundation

Twenty-five Years of Public Health Nursing
National Organization for Public Health Nursing

Vital Statistics
American Association of State Registration Executives

Activities of New York State Health Department

THE TECHNICAL EXHIBITS

MORE than 100 of the country's outstanding business organizations are represented this year in the Health Exhibit. They are contributing, for the information of professional public health workers, a thoroughly comprehensive display of what is available commercially for health protection and promotion.

Delegates will want to plan their days so that they may spend as much time as possible examining the commercial exhibits. They are listed in the Directory of Exhibits in the advertising pages. All have a real reason for engaging the attention of a professional audience, and it is to the advantage of all public health workers to become well acquainted with the products on display and with the organizations sponsoring them.

THE AMERICAN PUBLIC HEALTH ASSOCIATION BOOK EXHIBIT

THE American Public Health Association will present again an exhibit of public health books from all the best publishing houses in the United States. More than 500 of the newer health books will be assembled on convenient shelves at a prominent location in the exhibit hall. A trained librarian will be in charge, ready and willing to answer questions about what is new

and what is good in every public health specialty.

Orders will be taken for later delivery by the Association's Book Service.

Entertainment Events

THE Local Committee, under the chairmanship of Dr. John L. Rice, Commissioner of Health of New York City, is arranging an entertainment program to suit the diverse tastes of the 4,000 delegates who are expected to attend the Annual Meeting. This will begin on Sunday, October 3, for the benefit of early arrivals in New York and the Health Education Institute students. The Local Committee will hold open house in the Pennsylvania Hotel that afternoon from 4:00 to 7:00, and all are invited to call and make the acquaintance of our hosts and hostesses.

As is traditional, there will be a reception to the retiring President Dr. Thomas Parran and Mrs. Parran, and to the incoming President Dr. Arthur T. McCormack and Mrs. McCormack, at the closing of the First General Session on Tuesday evening, October 5. Dancing will follow.

On Thursday afternoon, at which time no scientific meetings will be in progress, a harbor trip will be featured. This will give visitors an opportunity to see New York's far-famed waterfront and skyline. Music will be provided and refreshments served on the boat.

Special entertainment will be presented in connection with the annual banquet on Thursday evening, and two or three hours of good dance music will end the evening's festivities.

The Ladies' Entertainment Committee is scheduling a fashion show and tea, a garden trip, and a matinee, to keep wives of delegates busy while their husbands attend scientific meetings.

Optional trips to the Empire State Building, to Radio City, to New York's many museums, to the S.S. Normandie and S.S. Queen Mary, will be arranged.

In summary, the days and nights will be crowded with interesting and pleasant things to do and see in sufficient variety for every delegate to indulge his or her fancies and desires.

Invitation to Visit the New York State Health Department

DR. EDWARD S. GODFREY, Jr., Commissioner of Health of New York State, extends a cordial invitation to all delegates to the New York City meeting to visit the Department in Albany on Saturday, October 9, the day after the convention closes.

The day will be spent in inspecting Department activities. Dr. Godfrey generously offers to provide luncheon, as well as transportation in Albany.

Those who will find it possible to accept the invitation are asked so to inform Dr. George H. Ramsey, Assistant Commissioner, State Department of Health, Albany, N. Y.

Post Convention Cruise to Bermuda

A NOTIFICATION was mailed to the entire membership early in July, announcing a cruise to Bermuda on the Gdynia American Line M. S. Pilsudski.

The delegation will sail on Friday, October 8, returning to New York Wednesday, October 13.

Members who wish to take advantage of this unusually inexpensive and attractive cruise may do so upon immediate application to headquarters.

Accommodations begin at $50. Rooms with showers are $75.

Included in the rate is a get-together dinner on board the Pilsudski, Friday evening, a banquet to members of the Association followed by a Grand Ball and Entertainment on the boat in Bermuda, overnight in Bermuda using the vessel as a hotel.

Busses will leave the Hotel Pennsylvania, Friday, October 8, at 6:15 P.M. sharp. Passengers and baggage will be conveyed to the pier in Hoboken.

DINNER PLAN FOR HEALTH OFFICERS

ON Wednesday, October 6, at the Hotel Pennsylvania, the National Society for the Prevention of Blindness will be the host at a dinner given for state, county, and city health officers visiting New York City during the American Public Health Association meeting. The dinner will be the occasion for an informal discussion of "Possibilities for State Prevention of Blindness Developments Through Statewide Coöperation" by various health officers and members of the Inter-organization Committee on Sight Conservation which was organized to promote state prevention of blindness activities under health agency auspices. The following organizations are participating members on this committee:

American Public Health Association
American Public Welfare Association
Children's Bureau
National Society for the Prevention of Blindness
Social Security Board
State and Provincial Health Authorities of North America
U. S. Public Health Service

It is planned to send invitations to health officers some time in September in order that those who wish to attend the dinner may indicate their intention.

HOTEL RATES

	Room Capacity	*Rate per Day*				
		Single Room	*Double Bedded Room*	*Twin Bedded Room*	*Suite for One*	*Suite for Two*
Pennsylvania	2,000	$3.50 up	$5.00 up	$6.00 up	$11.00 up	$13.00 up
New Yorker	2,500	3.50	5.00	6.00		
McAlpin	1,300	2.50 up	4.00 up	4.50 up	8.00 up	10.00 up

.....**(Cut off on this line and mail to the hotel of your choice)**.....

HOTEL RESERVATION BLANK FOR NEW YORK MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
50 WEST 50TH STREET, NEW YORK, N. Y.
OCTOBER 5–8, 1937

To .....
(Name of Hotel)

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APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

W. B. Bruce, M.D., Court House, Helena, Ark., Medical Director, District No. 8

Roderick M. Buie, M.D., County Court House, Greensboro, N. C., Guilford County Health Officer

Horace DeLien, M.D., Rapid City, S. D., Pennington County Health Director

Manuel Diez Martinez, M.D., Rosales No. 48, Culiacan, Sin., Mexico, State Health Officer

Joseph L. Gayton, M.D., 2148 Daniel St., Trail, B. C., Canada, City Health Officer

Harvey J. Skarshaug, M.D., P. O. Box 1292, Fargo, N. D., City Health Officer

Courtney Smith, M.D., Hogg Bldg., Oregon City, Ore., Clackamas County Health Officer

John W. Tappan, M.D., 209 S. Campbell St., El Paso, Tex., Director, City-County Health Unit

Woodye A. Winter, M.D., Forrest City, Ark., Director, St. Francis County Health Unit

John J. Wright, M.D., Box 346, Erwin, Tenn., Assistant Director, Carter-Unicoi Health District

Laboratory Section

Eldon M. Boyd, M.D., Queen's University, Kingston, Ont., Canada, Assistant Professor of Pharmacology

Jessie M. Dewey, 4342 Drexel Blvd., Chicago, Ill., Junior Bacteriologist, Board of Health

Ernest Q. King, M.D., Ph.D., 920 E. Broadway, Salt Lake City, Utah, to instruct in public health laboratory methods at Kwong Wah Medical College, Canton, China

Grace L. McCallum, 2341 W. Grand Blvd., Detroit, Mich., Laboratory worker

Viola M. Michael, Ph.D., State Dept. of Public Health, Springfield, Ill., Diagnostic and Research work, Division of Laboratories

Delmar M. Rudig, 1180 E. 63 St., Chicago, Ill., Senior Bacteriologist, Board of Health Laboratories

Gregory B. Stolberg, 667 Madison Ave., New York, N. Y., Director, Stolberg Laboratories

Charles B. Waite, M.D., 296 Stewart St., Peterborough, Ont., Canada, Director, Branch Laboratory, Provincial Dept. of Health

Vital Statistics Section

Louis P. Hellman, State Dept. of Health, Albany, N. Y., Assistant Statistician, Bureau of Maternity, Infancy and Child Hygiene

Edward M. L'Engle, M.D., State Board of Health, Jacksonville, Fla., Director, Bureau of Vital Statistics

Robert T. Stimpson, M.D., C.P.H., State Board of Health, Raleigh, N. C., Director, Bureau of Vital Statistics

Public Health Engineering Section

Donald K. Harmeson, 3121–25 Ave., Rock Island, Ill., Sanitary Engineer, State Dept. of Public Health

Raymond J. Karpen, State Dept. of Health, Minneapolis, Minn., Assistant Sanitary Engineer, U. S. Army and State Dept. of Health

George S. Michaelsen, State Dept. of Health, Minneapolis, Minn., Assistant Sanitary Engineer

Earl H. Ruble, State Dept. of Health, Minneapolis, Minn., Assistant Sanitary Engineer

Frank Tetzlaff, C.E., Apartado 1244, Caracas, Venezuela, S. A., Sanitary Engineer for Government

Vernon L. Walker, State Health Dept., Springfield, Ill., Sanitary Engineer

Industrial Hygiene Section

Paul A. Brehm, M.D., No. 1 W. Wilson, Madison, Wis., Supervisor of Industrial Hygiene, State Board of Health

Food and Nutrition Section

Brady S. Johnston, 660 King St., Jacksonville, Fla., Vice-President, Dinsmore Dairy Co.

Mary Lenihan, 153 Beach 131 St., Belle Harbor, N. Y., Inspector of Foods, New York City Dept. of Health

Therese Olzendam, 420 Lexington Ave., New York, N. Y., Editorial Dept., J. Walter Thompson Co.

Robert C. Robertson, 120 South James, Carthage, N. Y., Inspector of Foods, New York City Department of Health

Child Hygiene Section

James M. Coleman, M.D., 812 Avondale Rd., Austin, Tex., Field Director, Division of Maternal and Child Health, State Dept. of Health

Helen Elston, M.D., 515 Walnut St., Elmira, N. Y., School Inspector

Morna Weltman, 1800 Fillmore St., Chicago, Ill., Instructor in Health and Nutrition, Jewish Social Service Bureau of Chicago

Public Health Education Section

Ida M. Finch, R.N., Chamber of Commerce Bldg., Auburn, N. Y., Executive Secretary, Cayuga County Committee on Tuberculosis and Public Health

Beulah France, R.N., 440 Riverside Drive, New York, N. Y., Health Education Consultant

Adele E. Yoe, 1143 Cherokee Rd., Louisville, Ky., Director, Health Education, Dept. of Health

Public Health Nursing Section

E. Blanche Harstine, 760 W. Euclid, Detroit, Mich., Special Supervisor, Tuberculosis Nursing Division, Dept. of Health

Ann Hauser, Richmond, Mo., County Nurse, Ray County Public Health Service

Frances R. Kahl, R.N., Rm 314, U. S. Court House, Chicago, Ill., Regional Public Health Nursing Consultant, U. S. Public Health Service

Amalia G. Krause, R.N., 26 Front St., Pontiac, Mich., Public Health Nurse, Oakland County Health Dept.

Mabel L. King, R.N., Box 17, Old Capitol, Jackson, Miss., Orthopedic Nurse, Crippled Children's Service

Bertha C. B. McClendon, R.N., Lewisville, Ark., Lafayette County Public Health Nurse, State Board of Health

Rosalie I. Peterson, 1713 N. Troy St., Clarendon, Va., Associate Public Health Nursing Consultant, U. S. Bureau of Indian Affairs

Margaret T. Ritchie, R.N., 18 E. Garfield St., Phoenix, Ariz., Nurse, Maricopa County Health Unit

Epidemiology Section

Arthur Burns, M.D., State Dept. of Health, Austin, Tex., Director, Division of Tuberculosis

Charles Goodman, M.D., 745 Fifth Ave., New York, N. Y., Director, Typhus Research Fund, New York University Medical School

Unaffiliated

Maurice Mereness, 300 Del St., Walton, N. Y., Inspector of Food, New York City Dept. of Health

Paul R. Swift, 40 Jackson St., Montrose, Pa., Inspector of Foods, New York City Dept. of Health

DECEASED MEMBERS

Harrison P. Eddy, Boston, Mass., Elected Member 1910, Fellow 1924

Wilder D. Hubbard, M.D., Florence, Ala., Elected Member 1925

John F. O'Donnell, Kansas City, Mo., Elected Member 1935

APPLICANTS FOR FELLOWSHIP

(Other names listed in August Journal)

IN accordance with the By-laws of the Association, the names of applicants for Fellowship are officially published herewith. They have requested affiliation with the Sections indicated. Action by the various Section Councils, the Committee on Fellowship and Membership, and the Governing Council will take place between now and the time of the New York City Annual Meeting.

Health Officers Section

Walter L. Bierring, M.D., State Commissioner of Health, Des Moines, Ia.

Angel de la Garza Brito, M.D., C.P.H., Chief, General Office of Rural Hygiene, Federal Department of Health, Mexico City, Mexico

Charles H. Eller, M.D., Dr.P.H., Director of Rural Health, State Department of Health, Richmond, Va.

Frank C. Cady, D.D.S., C.P.H., Dental Consultant to State Health Authorities, U. S. Public Health Service, Washington, D. C.

T. O. Crawford, M.D., Health Officer, Dewey, Okla.

George E. Taylor, M.D., Health Officer, Hornell, N. Y.

Laboratory Section

William E. Bunney, M.Sc., Ph.D., Associate Director, Bureau of Laboratories, State Department of Health, and Instructor in Public Health, Wayne College of Medicine, Lansing, Mich.

Marion B. Coleman, B.S., Senior Bacteriologist, State Department of Health, Albany, N. Y.

Elliott H. Parfitt, Ph.D., Associate Professor of Dairy Bacteriology, Purdue University, Lafayette, Ind.

Emil Weiss, M.D., Ph.D., Special Consultant, U. S. Public Health Service, and Associate in Bacteriology and Public Health, College of Medicine, University of Illinois, Chicago, Ill.

Rhoda W. Benham, Ph.D., Assistant Professor of Dermatology, Columbia College of Physicians and Surgeons, New York, N. Y.

Sara E. Branham, M.D., Sc.D., Senior Bacteriologist, U. S. Public Health Service, Washington, D. C.

F. Wellington Gilcreas, A.B., Associate Sani-

tary Chemist, Division of Laboratories and Research, State Department of Health, Albany, N. Y.

K. George Falk, Ph.D., Director, Laboratory of Industrial Hygiene and Biological Chemist, Bureau of Laboratories, Department of Health, New York, N. Y.

Julia M. Coffey, A.B., Associate Bacteriologist, Division of Laboratories and Research, State Department of Health, Albany, N. Y.

Herbert E. McDaniels, Ph.D., Chief, Division of Laboratories, State Department of Health, Springfield, Ill.

Martin Frobisher, Jr., Sc.D., Director of Laboratories School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

John T. Myers, M.D., Assistant Director, Bendiner & Schlesinger, Inc., New York, N. Y.

Vital Statistics Section

Joseph Berkson, M.D., D.Sc., Head, Division of Biometry and Medical Statistics, Mayo Clinic and Associate Professor of Biometry and Statistics, University of Minnesota, Rochester, Minn.

Public Health Engineering Section

Herman G. Baity, S.D., S.B. in C.E., Professor of Sanitary Engineering, University of North Carolina, Chapel Hill, N. C.

James L. Barron, C.B., Director, Division of Sanitation, Westchester County Department of Health, White Plains, N. Y.

Lewis V. Carpenter, M.S.C.E., Professor of Sanitary Engineering, New York University, New York, N. Y.

Carl E. Green, A.B. in C.E., State Sanitary Engineer, State Board of Health, Portland, Ore.

Edward D. Hopkins, Senior Sanitary Engineer, Pan-American Sanitary Bureau, Washington, D. C.

Harold F. Gray, M.S., Lecturer on Public Health, University of California, and Consulting Sanitary Engineer, Berkeley, Calif.

Archie B. Freeman, M.S., Assistant Engineer, State Board of Health, Raleigh, N. C.

Earl Devendorf, M.S., Associate Director, Division of Sanitation, State Department of Health, Schenectady, N. Y.

Anselmo F. Dappert, M.S. in S. & M.E., Principal Sanitary Engineer, State Department of Health, Albany, N. Y.

Carl J. Lauter, M.S., Chief Chemist, Filtration Plants, U. S. Engineers Office, War Department, Washington, D. C.

John Oberwager, M.D., Director, Sanitary Bureau, Department of Health, New York, N. Y.

Industrial Hygiene Section

S. Edward King, M.D., Medical Director, Stewart Cafeterias, New York, N. Y.

Food and Nutrition Section

Mervyn B. Starnes, D.V.M., Chief, Division of Inspection and Sanitation, Department of Public Health, Dallas, Tex.

Public Health Nursing Section

Elizabeth S. Soule, M.A., Director, School of Nursing, University of Washington, Seattle, Wash.

Marion H. Douglas, B.S., C.P.H., Executive Director, Hartford Visiting Nurse Association, Hartford, Conn.

Ethel G. Brooks, B.S., R.N., Director, Nursing Service and Executive Secretary, Wheeling Chapter, American Red Cross, Wheeling, W. Va.

Epidemiology Section

H. Trendley Dean, D.D.S., Dental Surgeon, U. S. Public Health Service, Washington, D. C.

Bruce H. Douglas, M.D., Controller of Tuberculosis, Department of Health, Herman Kiefer Hospital, Detroit, Mich.

Nels A. Nelson, M.D., Director, Division of Genito-Infectious Diseases, State Department of Health, Boston, Mass.

Esmond R. Long, M.D., Ph.D., Director, Henry Phipps Institute, University of Pennsylvania, Philadelphia, Pa.

Unaffiliated

Paul B. Cornely, M.D., Dr.P.H., Associate Professor, Howard University, Medical School, Washington, D. C.

Jose P. Bill, M.D., Dr.P.H., Assistant Professor of Public Health, Boston University, School of Medicine, Boston, Mass.

Harley J. Powell, M.D., Wood County Health Commissioner, Bowling Green, Ohio

STANDARD METHODS OF MILK ANALYSIS

THE committee has made progress during the year on the preparation of the manuscript for the new edition of *Standard Methods of Milk Analysis,* and will have much new material of real importance in spite of the fact that the committee decided yesterday not to recommend a change in the formula for standard agar or 32° incubation as yet. In the new manuscript, the committee is recommending the use of the Quebec colony counter; the new methylene blue thiocyanate tablets are accepted as standard; the coliform technic has been clarified considerably; methods for detecting brucella and tuberculosis organisms are included on a tentative basis; and an improved technic for determining the sterility of milk bottles and other containers is included as well as many other improvements.

In the section dealing with coliform organisms, formate ricinoleate broth and brilliant green broth have both been accepted. Violet-red bile agar and desoxycholate agar are approved for plating work.

While all members of the milk committee are agreed that it is desirable to use an improved agar and introduce 32° incubation, they felt it better to defer action on these matters until a further comparative study of formulae for improved agars could be carried out under the supervision of a referee. We found ourselves to be more nearly in harmony than we were a year ago in regard to the formula that should be used, but it was felt desirable to go slowly and conservatively, and to make sure that the formula chosen would be satisfactory for use for a long period of time. Because public health milk laboratories find it difficult to get adequate equipment for milk work, it was also felt desirable to ask a referee to study the problem of preparing directions for the construction of inexpensive incubator rooms and incubators that can be operated satisfactorily at 32° C.

The incubator matter is to be referred to Dr. R. V. Stone who is acting for the committee as a Referee for development of new apparatus, and Dr. C. N. Stark, who has made a study of the construction of laboratory size incubators, is to be asked to work with him as Associate Referee. Suggestions concerning some interested and capable public health man who would act as an impartial referee in carrying out a comparison of formulae for improved agars were requested. The appointment of C. A. Abele, Director of the Division of Milk Inspection for the State of Alabama, was suggested. (July 30—It seems probable that Mr. Abele will undertake this commission, and his name will soon be presented to Dr. A. P. Hitchens with a recommendation that he be appointed a Referee to undertake this work.)

A suggestion was made by Dr. Norton that the new milk report have an index as well as a Table of Contents.

It was voted that, subject to editorial revision, the manuscript of the new (7th) edition of *Standard Methods for the Examination of Dairy Products* be approved for presentation to the Laboratory Section at the Annual Meeting in October. While this manuscript includes many changes, the formula for standard agar as given is the old formula and the incubation temperature is still given as 37° C.—Excerpt from Minutes of Meeting of the Coördinating Committee on Standard Methods, A.P.H.A., Tuesday morning, July 29, 1937.—A. Parker Hitchens, *Chairman.*

NEWS FROM THE FIELD

NEWSPAPERS AND VENEREAL DISEASE CONTROL

THE importance of syphilis and gonorrhea as public health problems and the power of the press as an educational factor in the control of these diseases have again been recognized with the award, by the Pulitzer Prize Committee, of honorable mention to the *New York Daily News* for "the most disinterested and meritorious public service rendered by any American newspaper during the year" 1936.

The *News* was cited "for its campaign covering venereal diseases and prophylaxis"—notably a series of straightforward, authentic articles written by Carl Warren, a reporter on the *News* staff, which set forth specifically and in plain language the facts about prevalence, symptoms, treatment, clinics and quackery. The entire series was submitted to and approved by a group of specialists in venereal disease control prior to publication.

Popular response to these articles, as noted in the June issue of the *Health Officer*, published by the U. S. Public Health Service, suggests not only the universal need for such publicity but also the widespread desire among the people themselves for knowledge on the subject. From persons in all walks of life in this country and abroad, the *News* received hundreds of letters, all congratulatory, asking for more information. Many wanted facts about clinics and physicians while others asked about preventive measures. One of the most tangible results was the marked increase in the number of examinations made at the New York City clinics and by private physicians. During the first three months of 1937, compared with the corresponding period of 1935, 82 per cent more persons were examined at the clinics conducted by the City Bureau of Social Hygiene; 47 per cent more patients were treated for syphilis; 321 per cent more patients were treated for gonorrhea, and there were 126 per cent more visits for treatment.

The *News* followed up the articles with editorials, cartoons and spot news stories. Along with other newspapers, it covered local, regional and national conferences of public health officials and scientists on social hygiene. Particularly significant is the fact that new developments in this field now are handled by staff reporters as routine city desk assignments.

According to an estimate by William F. Snow, M.D., general director of the American Social Hygiene Association and special consultant to the U. S. Public Health Service, 50 per cent of the daily newspapers in the United States and a dozen leading magazines have carried articles, editorials, and cartoons on venereal diseases during the last year.

The local health officer can ease his own task considerably and at the same time render a genuine service to his community by enlisting the support of the local press in his efforts to bring to the people the facts that they should have about syphilis and gonorrhea.—*Health News*, State Dept. of Health, Albany, N. Y., July 26, 1937.

DISTRICT OF COLUMBIA NEWS

Gallinger Hospital, a general hospital of the District of Columbia, has been transferred from the Board of Public Welfare to the Department of Health, together with the tuberculosis sanatoria of the District.

George C. Ruhland, M.D., Health Officer of the District, has announced

that the building of a district health center at a cost of $200,000 has been authorized with the expectation that there will be need for three or four such centers in districts where there are no hospitals or out-patient facilities and where the health problems are greatest. Also in preparation are plans for a municipal center where the Health Department hopes to find a home.

Dr. Ruhland also announced a health demonstration in an area of the District of Columbia that has a bad health and mortality record. The population of this district is roughly 100,000. He states that the service to be developed in this district will be established on the basis of the standards recommended by the American Public Health Association.

ANTHRAX OUTBREAK

IN late July there was a serious outbreak of anthrax in southeastern South Dakota. The infection appears to be in virulent form and has been spreading rapidly. In some districts cases have been reported on almost every farm, and a large number of cattle and horses have died of the disease. The livestock sales agencies have had to cease operations in some counties during the emergency, and where the disease is at its worst state officials have stopped all traffic in livestock.

Local, state, and federal veterinarians are assisting with the control work which calls for the immunizing of stock not yet affected, the burial or burning of carcasses of animals that have died of the disease, early detection of unreported cases, and attending to quarantine regulations.—*Release,* U. S. Dept. of Agriculture, Aug. 3, 1937.

UNIVERSITY OF NEBRASKA COURSE

THE University of Nebraska, Lincoln, Nebr., announces the establishment of a Graduate School of Social Work which will open September 15, 1937.

For information, write the Director, Ernest F. Witte.

LEPROSY CONFERENCE

ARRANGEMENTS are being made to hold the Fourth International Leprosy Conference in Cairo, beginning March 21, 1938. This conference is being organized by the International Leprosy Association, and this will be the first International Conference to be arranged by this association since its inauguration in 1931. Three previous conferences of this nature have been held—at Berlin in 1897, at Bergen in 1909 and at Strassbourg in 1923.

The Egyptian Government is inviting all countries concerned to send official delegates. In addition to these, doctors and others interested in the subject are invited to be present. Full information can be obtained from the Secretary of the International Leprosy Association, 131 Baker Street, London, W.1.

EDUCATIONAL BROADCASTING CONFERENCE

THE Second National Conference on Educational Broadcasting has been announced for Chicago, Illinois, November 29, 30, and December 1. The American Public Health Association is one of the sponsors of this Conference.

The Objectives, as announced, are as follows:

To provide a national forum where interests concerned with education by radio can come together to exchange ideas and experiences; to examine and appraise the situation in American broadcasting as a background for the consideration of its present and future public service; to examine and appraise the listeners' interest in programs that come under the general classification of public service broadcasting; to examine the present and potential resources of education through radio; to examine and appraise the interest of organized education in broadcasting; to bring to a large and influential audience the findings that may become available from studies and researches in the general

field of educational broadcasting, particularly such studies and researches as may be conducted by the Federal Radio Education Committee.

SEVENTH CRUISE CONGRESS

THE Pan American Medical Association announces that it has chartered the S.S. Queen of Bermuda for its Seventh Cruise Congress to Havana and the West Indies, sailing from New York January 15, 1938, and returning January 31.

The main part of the Congress will be held in Havana, where there will be three days of scientific sessions with operative clinics. These will be divided into sections for the various medical and dental specialties. Meetings will be arranged with colleagues at other ports of call.

Applications should be addressed to the Pan American Medical Association, 745 Fifth Avenue, New York, N. Y.

GENITOINFECTIOUS DISEASES DIVISION

ON July 1, the Sub-division of Gonorrhea and Syphilis in the Division of Communicable Diseases of the Massachusetts Department of Public Health was made a separate Division of Genitoinfectious Diseases, with Nels A. Nelson, M.D.,† as Director.

AMERICAN HOME ECONOMICS ASSOCIATION

RESOLUTIONS ADOPTED AT ANNUAL MEETING, KANSAS CITY, MISSOURI, JUNE 21–24, 1937

WHEREAS, all home economics is directed toward a common goal, namely the improvement of personal and family living and activities growing out of them;

Be it resolved that the chairmen of departments of the Association devote a portion of their programs to the presentation of the common purpose and to a consideration of the social significance of their particular field of work to the ultimate objective of home economics.

WHEREAS, health education in the schools is rightly a coöperative program;

Be it resolved that school administrators be urged to provide for participation of home economics teachers in those phases of health education in which they are best qualified to give instruction.

WHEREAS, the school lunchroom is an important factor in child health and growth, and whereas its administration requires a scientific knowledge of nutrition and professional training in institution administration;

Be it resolved that school administrators be urged to secure supervision of the school lunchroom by trained persons on a professional rather than a commercial basis.

ELI LILLY COMPANY PRIZE

THE American Association for the Advancement of Science has awarded the first Theobald Smith Prize of $1,000, established by the Eli Lilly Company of Indianapolis, to Dr. Robley D. Evans, Assistant Professor of Physics at the Massachusetts Institute of Technology, for his method of detecting radium poisoning.

DEATHS

CHARLES A. BENTZ, M.D.,* Director of the Division of Communicable Diseases, Department of Health, of Buffalo, N. Y., died July 25. He was actively interested in the development of public health laboratory facilities and in the maintenance of high standards of service. Since 1923, he had been Director of the

† Member A.P.H.A., * Fellow A.P.H.A.

Bacteriological Laboratories of the Buffalo Department of Health, which also provides laboratory service for Erie County, and during the past 7 years had directed the work of the J. N. Adam Memorial Hospital Laboratory at Perrysburg, N. Y.

PERSONALS

ABEL WOLMAN,* Chief Engineer of the Maryland State Department of Health, has been appointed Professor of Sanitary Engineering at Johns Hopkins University.

CHARLES E. GILL, M.D.,† formerly in the Division of Tuberculosis of the Massachusetts Department of Public Health, has been appointed District Health Officer for the North Metropolitan District of Massachusetts, to succeed the late CHARLES B. MACK, M.D.

FRANK C. CADY, D.D.S.,† Dental Surgeon, U. S. Public Health Service, has recently completed a course in public health administration at Harvard and a special course in school health education and administration at the Massachusetts Institute of Technology, and has been assigned as Consultant to the State Health Authorities on the organization and administration of dental health service in connection with the Social Security Program.

DR. THOMAS B. PHINIZY, of Augusta, who has been Acting Commissioner of Public Health of Richmond County, Ga., for the past year, has been appointed Commissioner, effective July 15.

CARL C. DAUER, M.D., M.P.H.,* Assistant Professor of Preventive Medicine of Tulane University Medical School, New Orleans, La., has resigned to become Assistant Epidemiologist in the Health Department of the District of Columbia.

GEORGE HAYS, M.D.,† recently Director of Local Health Administration and Acting Director of Maternal and Child Health of the Arizona State Board of Health, has been appointed City Health Officer of Flint, Mich., effective July 16.

SARA E. BRANHAM, M.D., PH.D.,† Senior Bacteriologist of the U. S. Public Health Service, Washington, received the Honorary degree of Doctor of Science from the University of Colorado recently, in recognition of her contributions to bacteriology in relation to public health.

MELVIN P. ISAMINGER, DR.P.H.,* Professor of Hygiene, Oregon State College, Corvallis, Oregon, has resigned to become Chief of the Bureau of Public Health Information of the District of Columbia Health Department. Dr. Isaminger is a graduate of the University of Michigan and formerly of the Department of Health in Detroit.

WILLIAM GROSSMAN, M.D.,† of Richmond, has been appointed Epidemiologist in the Bureau of Communicable Diseases of the Virginia State Health Department.

JAMES N. DUDLEY, M.D.,† formerly of Danville, Va., has been named Health Officer of Northampton County with headquarters at Eastville, succeeding DR. HUGH B. MAGILL, JR.

FRANCIS E. HARRINGTON, M.D.,† City Health Commissioner of Minneapolis, Minn., has been appointed Acting Superintendent of the Minneapolis General Hospital.

EDWARD M. L'ENGLE, M.D.,† of Jacksonville, formerly a member of the Florida State Board of Health, has been appointed Registrar of the Bureau of Vital Statistics of the Board, succeeding STEWART G. THOMPSON, D.P.H.,* resigned.

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Public Health Association—Sixty-sixth Annual Meeting. New York, N. Y. October 5–8.

MEETINGS OF THE FOLLOWING RELATED ORGANIZATIONS:

American Association of School Physicians. Annual Meeting in conjunction with Annual Meeting of the American Public Health Association. Hotel Pennsylvania, New York, N. Y. October 5–8.

American Association of State Registration Executives. McAlpin Hotel, New York, N. Y. October 5–8.

American Statistical Association—Biometric Section. McAlpin Hotel, New York, N. Y. October 8.

Association of Women in Public Health. Hotel Pennsylvania, New York, N. Y. October 6.

Conference of State Sanitary Engineers. Hotel Pennsylvania, New York, N. Y. October 5–6.

Delta Omega. McAlpin Hotel, New York, N. Y. October 6.

Federation of Sewage Works Associations. Hotel Pennsylvania, New York, N. Y. October 8.

National Organization for Public Health Nursing—Course Directors. Hotel Pennsylvania, New York, N. Y. October 7.

National Society for the Prevention of Blindness. Hotel Pennsylvania, New York, N. Y. October 6.

Public Health Association of New York City. Governor Clinton Hotel, New York, N. Y. October 5.

Academy of Physical Medicine—Fifteenth Annual Meeting. Hotel Walton, Philadelphia, Pa. October 19–21.

American Association of Railway Surgeons. Chicago, Ill. September 20–22.

American College of Surgeons. Chicago, Ill. October 25–29.

American Congress of Physical Therapy. Cincinnati, Ohio. September 20–24.

American Dietetic Association—Twentieth Annual Meeting. John Marshall Hotel, Richmond, Va. October 18–21.

American Hospital Association. Atlantic City, N. J. September 13–17.

American Institute of Nutrition. Baltimore, Md. Spring, 1938.

American Roentgen Ray Society. Chicago, Ill. September 13–17.

American Society of Sanitary Engineers. Washington, D. C. September 7–10.

American Water Works Association. New Orleans, La. April 25–28, 1938.

Association of Dairy, Food and Drug Officials of the United States. Raleigh Hotel, Washington, D. C. October 26–29.

Biennial Conference of the National Association for Nursery Education. Theme: Safeguarding the Early Years of Childhood. Nashville, Tenn. October 20–23.

Fifth International Congress of Radiology. Chicago, Ill. Sept. 13–17.

Fifth International Heating and Ventilating Exposition. Grand Central Palace, New York, N. Y. January 24–28, 1938.

International Association of Milk Dealers. Dallas, Tex. Oct. 21–23.

International Association of Milk Sanitarians. Brown Hotel, Louisville, Ky. October 11–13.

Iowa Public Health Association. Des Moines, Ia. May, 1938.

Medical Library Association. Boston, Mass., May, 1938.

Michigan Public Health Association. Lansing, Mich. November 10–12.

Mississippi Valley Medical Society. Quincy, Ill. September 29, October 1.

National Association of Educational

Broadcasters. Urbana, Ill. September 13–14.

National Conference of Social Work. Seattle, Wash. June 26–July 2, 1938.

National Warm Air Heating and Air Conditioning Association. New York, N. Y. January 24–26.

New England Milk Producers Association. Boston, Mass. October 26–27.

New England Sewage Works Association. Worcester, Mass. October 1–2.

New England Water Works Association. Poland Springs, Me., September 21–24.

New York State Association of Dairy and Milk Inspectors. Hotel Utica, Utica, N. Y. September 22–24.

New York State Conference on Social Work. New York, N. Y. October 19–22.

New York State Health and Physical Education Association. Syracuse, N. Y. December, 1937.

Ohio Conference of Sewage Operators. Cincinnati, Ohio. October 19–20.

Ontario Hospital Association. Toronto, Ont. October 21–23.

Pacific Coast Accident Prevention Conference. San Francisco, Calif. September.

Pan American Medical Association—Seventh Cruise Congress to Havana. (Pan American Medical Association, 745 Fifth Avenue, New York, N. Y.) January 15–31, 1938.

Pennsylvania State Organization for Public Health Nursing. Altoona, Pa. October 28.

Radiological Society of North America. Chicago, Ill. September 13–17.

Rocky Mountain Sewage Works Association. Santa Fe, N. M. September 20–22.

Second National Conference on Educational Broadcasting. Chicago, Ill. November 29, 30, December 1.

West Virginia State Health Conference. Charleston, W. Va. November 8–10.

Southern Medical Association. New Orleans, La. November 28.

FOREIGN

Fourth International Pediatric Congress. Rome, Italy. September 24–30.

Second International Congress for the Protection of Infancy. Rome, Italy. October 4–8.

Congress of Physiologists. Paris. October 11–13.

Institute of Sewage Purification. London. November 19.

Hawaii Territorial Medical Association. Honolulu, T. H. May, 1938.

The Enoch Pratt Free Library, Baltimore, Maryland, is very anxious to complete its file of **AMERICAN JOURNAL OF PUBLIC HEALTH** and solicits offers of Vols. 1–4, 1911–1914.

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